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ABSTRACT

This report embodies the findings of several studies, which conclude that America's schools have fallen into disrepair and sometimes present students and teachers with an unhealthy, unsafe, or even harmful educational environment. The researchers say that no guidelines are in place to help school districts select safe school sites. School sites are regularly sprayed with pesticides, and these chemicals are thought to be partly responsible for a whole generation of children who are increasingly hyperactive, slow to learn, and disruptive in school. The report offers specific recommendations to protect children from chemical contamination in air and soil surrounding schools and from exposure to toxic pesticides in schools and on school grounds. The report presents recommendations for school site selection and for developing integrated pest management programs. The report lists resources for additional information, and its appendices provide samples of school siting and pest management surveys. (GR)

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Poisoned Schools

Invisible Threats, Visible Actions

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A REPORT OF THE
CHILD PROOFING OUR COMMUNITIES:
POISONED SCHOOL CAMPAIGN

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Poisoned Schools: Invisible Threats, Visible Actions

This report is a joint effort of member organizations of the Child Proofing Our Communities: Poisoned School Campaign, a locally based, nationally connected campaign to protect children from exposure to environmental health hazards in our schools, homes, and communities. Grants from the Rockefeller Family Fund, Environmental Foundation of America, Ittleson Foundation, New York Community Trust, Winslow Foundation and Wallace Genetic Foundation fund the campaign. The Center for Health, Environment and Justice provides coordination.

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Invisible Threat
The Condition of Our Schools

National attention is increasingly focused on the poor condition of US public schools. In May of 2000, President Clinton took a "School Reform Tour" highlighting the need for school renovation and construction across the country. School buildings begin to rapidly deteriorate after 40 years. US public schools average 42 years of age, and one third require extensive repair or replacement.

In *School Facilities: Condition of America's Schools*, the US Government Accounting Office states, "While laws compel children to attend school, some school buildings may be unsafe or even harmful to children's health." Over sixty percent of schools (many in otherwise adequate condition) reported at least one major building feature, such as plumbing, in disrepair, and about half told of at least one unsatisfactory environmental condition, such as poor ventilation or heating or lighting problems.

According to American School and University's *29th Annual Maintenance and Operations Cost Study*, school districts spend more now to maintain and operate their buildings. However, in terms of the total budget, maintenance and operation now receive a smaller portion of available funds. For the 1999–00 school year, school districts nationally dedicated slightly more than nine percent of their net current expenditures (NCE) to maintenance and operation—the third consecutive year of budget percentage reductions. This represents a marked cut from 1990 when school districts earmarked more than eleven percent of net current expenditures for maintenance and operation.

Record numbers of students exacerbate this problem. Public elementary and secondary enrollment is expected to swell by another million between 1999 and 2006 to an all-time high of 44.4 million. Nearly 3,000 more schools are needed in the next few years to accommodate this flood. Congress has pledged to enact School Construction and Modernization Legislation to provide billions in funds to help local communities build and renovate 6,000 schools. Unfortunately this bipartisan measure failed during the last session of 2000, however an effort is underway to introduce the bill again in the new 2001 Congress. An Urgent School Repair Initiative was passed providing 1.2 billion in federal dollars to support emergency repairs, such as repair of roofs, plumbing and electrical systems, and meeting fire and safety codes, and technology-related construction activities.

Invisible Threat
Schools on Unsafe Lands

Astoundingly, no guidelines are in place to direct school districts where to locate new schools. Parents and communities across the US are shocked to find construction crews descending on abandoned landfills, brownfields, or next to heavily polluting industries to build schools. School districts pressed to save money are often enticed by donations of unknowingly contaminated property, seek out the cheapest land, or hire uncertified or poor-quality contractors for environmental assessment; all at great risk to children. The poor and communities of color where children already suffer disproportionately from asthma, lead poisoning, and developmental disabilities, lose out most frequently.

Invisible Threat
Schools Made Unsafe by Pesticides

We face a whole generation of children who are increasingly hyperactive, slow to learn,

and disruptive in school. Extensive scientific evidence documents the role pesticides play in this epidemi . The report *In Harm's Way: Toxic Threats to Child Development* summarizes the latest evidence linking commonly used pesticides to hyperactivity and permanent brain damage. It includes research that links pesticide combinations—like those farming typically contributes to our groundwater—with harm to the immune, hormone, and nervous systems.

Tragically, schools are regularly sprayed with these toxins and most parents have no knowledge of their hazards. Parents have a right to know about the risks chemical exposures pose for their children and to demand alternatives. Informed parents are empowered to take the steps that chemical and pesticide industry lobbyists most fear as they strive to repeal laws meant to protect our children.

Visible Actions: Ensuring Every Child Has an Environmentally Safe and Healthy Learning Environment

We stand at a critical juncture. Laws that could safeguard our children from pesticide exposure are under siege. Record numbers of schools are going up on contaminated land, without protective guidelines against exposure of children to soil, water, and air toxins. Delay in action exposes more children to toxic chemicals in school, day care, and Head Start centers. We must act now, before still more children are unnecessarily harmed.

The *Child Proofing Our Communities: Poisoned School Campaign* aims to connect local efforts across the country, raise awareness of toxic threats to children's health, and promote precautionary approaches most protective of children.

Recommendations

This report offers specific recommendations to protect children from chemical contamination in air and soil surrounding schools and from exposure to toxic pesticides in schools and on school grounds. If America's children are going to grow up healthy and learn in an environment that supports learning rather than impedes it through chemical exposure, we must act on these recommendations.

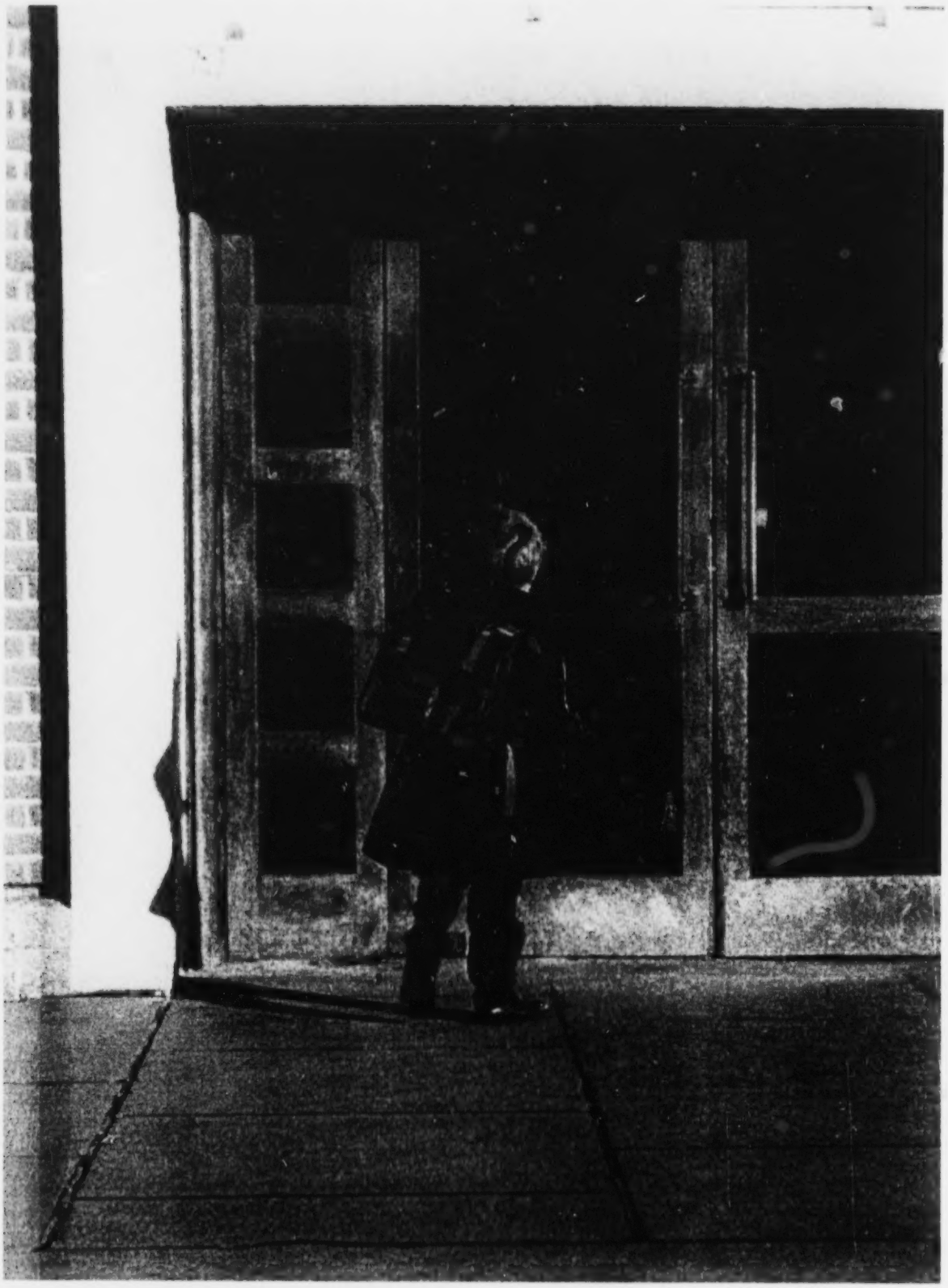
Recommendations for School Siting

- Participation in the school site acquisition process should be available to parents, age-appropriate students, teachers, and community members.
- To ensure precautionary approaches are taken when locating new schools, a complete site history, site visit, survey of surrounding potential sources of contamination, and testing and evaluation of potential health risks to children should be part of any site proposal. When there is cause for concern, another site should be chosen.
- Under no circumstances should a school be built on top of a hazardous waste, garbage, or other landfilled property.
- When other sites are not available, the proposed school property should be cleaned up to standards that protect children.
- No source of contamination, such as a landfill or containment facility, should be built or established within 1,000 feet of a school or Head Start facility. Nor should industrial or other facilities releasing chemicals be built or located within 2 miles of a school.

Recommendations for School Integrated Pest Management (IPM) Programs

- Participation in a school Integrated Pest Management (IPM) committee or other formal group should be available to parents, age-appropriate students, teachers, and community members.
- Preventive and alternative pest controls should be used first. These include sanitation measures that eliminate pest habitats, structural remedies that block pest access, and maintenance measures that prevent pest infestations.
- Only use least-toxic pesticides if pests present a documented health or safety hazard and never for strictly aesthetic purposes.
- If pesticides are used, they should be the least-toxic available and their use strictly limited. Under no circumstances should pesticides be used that can cause cancer, reproductive damage, nervous system damage, disruption of the hormonal (endocrine) system, damage to the immune system, or are acutely toxic.
- If least-toxic pesticides are to be applied, parents, students, and teachers should be notified in advance through written notification and posting. Notification should include what pesticides will be used, health affects associated with exposure, contact information, documentation as to why use is necessary, and the right to request alternatives.

Pesticide use and school siting are just two of many pervasive environmental health problems in our school systems. Other concerns include ventilation, air quality, toxic school products, renovation, maintenance, and sanitation. Groups throughout the U.S. are working hard on these issues. We support continued growth of the *Child Proofing Our Communities: Poisoned School Campaign* and are committed to working together to develop strategies and tools for creating healthier homes, schools and community environments for all children.



INTRODUCTION

Children are powerless against many dangers in school and out, and they look to adults for protection. However, decisions adults make on a daily basis frequently imperil our nation's children. Pesticides are routinely applied in schools and other places children frequent. New schools are built on or near chemically contaminated lands. Over a billion pounds of neurotoxins (chemicals that affect a child's brain) are released annually by large industrial facilities, contaminating our children's air, water, land, and food supply (GBPSR, 2000).

Today we see evidence that chemical exposures—these invisible threats—diminish the health and intellect of US children. National environmental health research reveals increasing numbers of children afflicted with asthma, cancers, lower IQs, and learning disabilities that impede their ability to develop their full potential.

This report is the outcome of a nationwide coalitional effort to eliminate practices that place children at risk from chemicals in their environment—particularly schools, parks, and playgrounds. The *Child Proofing Our Communities: Poisoned School Campaign* is the beginning of a long-term collaborative venture among many groups addressing children's environmental health, to eliminate, where possible, chemical exposure in schools and our communities, providing a safe and healthy environment to learn and play.

Child Proofing Our Communities Campaign—Four Primary Goals

- Ensure parent, teacher, student, and community right-to-know. This means involving them in decision-making processes about pesticide use and school siting and notifying them in advance of health hazards associated with pesticides and contaminants on or near proposed or existing school property.
- Ensure that new schools are built on land that poses no unnecessary health risk to children from contaminated soil, air, or water releases.

Environmental management of all schools should be guided by the following Guiding Principles developed by the Healthy Schools Network and adopted by the New York State Regents Advisory Committee on Environmental Quality in Schools. The *Child Proofing Our Communities: Poisoned School Campaign* endorses these comprehensive principles.

Guiding Principles for Environmental Quality of Schools

- Every child has a right to an environmentally safe and healthy learning environment that is clean and in good repair.
- Every child, parent, and school employee has a right to know about environmental health issues and hazards in their school environment.
- School officials and appropriate public agencies should be held accountable for environmentally safe and healthy school facilities.
- Schools should serve as role models for environmentally responsible behavior.
- Federal, state, local, and private sector entities should work together to ensure that resources are used effectively and efficiently to address environmental health and safety conditions (RACEQS, 1994).

- Ensure that contaminated school property is brought to standards protective of children. If cleanup is not possible, remove students, teachers, and staff from schools built on or near sources of contamination that pose serious chemical health risks.

- Eliminate the use of high-hazard pesticides by implementing school Integrated Pest Management programs that focus on pest-infestation prevention, pest monitoring, and pest control through cost effective, proven alternatives, using least-toxic pesticides as a last resort.

The following sections describe both why children are vulnerable to environmental chemicals and the four campaign goals of the *Child Proofing Our Communities: Poisoned School Campaign*. They explicitly discuss goals as they relate to building schools on or near contaminated areas and using pesticides, fungicides, and herbicides in and around schools. Each section outlines the problems, with examples, detailed solutions, and steps that can be taken to protect children from these chemical hazards.

CHILDREN'S SPECIAL VULNERABILITIES

During a critical period of their growth and development, children spend a large part of the day at school. To needlessly place them in settings that heighten risk of disease or hyperactivity or lower IQ is therefore irresponsible, especially in light of recent health statistics that document increased incidence of childhood cancer and disease. Health concerns about environmental chemical exposure first expressed by parents are now echoed nationally by groups such as the US Environmental Protection Agency, the National Academy of Sciences, Physicians for Social Responsibility, and the National Parents Teachers Association.

Why? Because such statistics are frightening. Though opinions vary about the causes of increases in childhood illnesses, all agree such increases are real and that society should take steps to prevent childhood exposure to unnecessary health risks. Children attend school at least 180 days a year. Preventive steps in schools are consequently critical to reduce children's exposure to environmental chemicals and the incidence of disease.

Rising Rates of Disease in Children

In recent years scientists have gained far better understanding of children's special vulnerability to chemical exposure (GBPSR, 2000; Landrigan, 1998; Bearer, 1995). They find that, relative to adults, children require greater protection and that more research on children's responses to chemical exposure is critical. Researchers do not understand all of the interactions between chemical exposure and growing children but the data clearly justify school and other governmental action to protect children. The rising rate of childhood disease is indisputable.

- Asthma, afflicting nearly 4.8 million US children, is the primary cause of school absenteeism and hospital admission among chronic conditions (ALA, 1999).

- Cancer is the number one disease-related cause of death in children (NCI, 1998). Approximately 8,500 US children—newborns to age 15—are diagnosed with cancer annually. The American Cancer Society estimated that 1,600 children under 15 would die from cancer in 1999 (ACS, 1998).

  The most recent cancer statistics on children from the National Cancer Institute (1998) show that the percentage of cancer increased in children 0–4 years old between 1973 and 1995:
  - 53% rise in brain and other nervous system cancers
  - 37% rise in soft tissue cancer
  - 32% rise in kidney and renal pelvis cancers
  - 18% rise in acute lymphoid leukemia

  They reveal increased cancer in teenagers ages 15–19 during the same period:
  - 128% rise in non-Hodgkin's lymphoma
  - 78% rise in ovarian cancer
  - 65% rise in testicular cancer
  - 30% rise in bone and joint cancer
  - 29% rise in thyroid cancer

- Childhood learning disabilities, hyperactive behavior, and inability to maintain attention have also soared nationwide. The number of children in special education programs increased 191% from 1977 to 1994 (GBPSR, 2000).

- Conservative estimates are that attention deficit hyperactivity disorder (ADHD) affects 3–6% of all school-age children. Some researchers suggest a much higher rate, near 17% (Goldman, 1998).

- Autism appears to be skyrocketing. In California, childhood autism is thought to have risen over 200% between 1987 and 1998 (CHHS, 1999).

- Numerous scientists believe many of these diseases and learning problems may be related to children's exposure to environmental chemicals in the womb or their everyday environment, including their school (GBPSR, 2000; Needleman, 1994).

These increases in disease and disability critically impact the present and future of our nation. Making our children sick or unable to develop their full intellectual potential could devastate future generations, the economy, and everyone's quality of life.

The US mandates its schools to educate our children so that they can become vital contributors to society. Most definitely they are not commissioned to hamper children's intellectual development and health. Moreover, education not only is the foundation of a stable, just society, but critical to national economic competitiveness. Continued rises in rates of learning disabilities, lower IQ scores, hyperactive behaviors, and more could imperil our nation's future economic base.

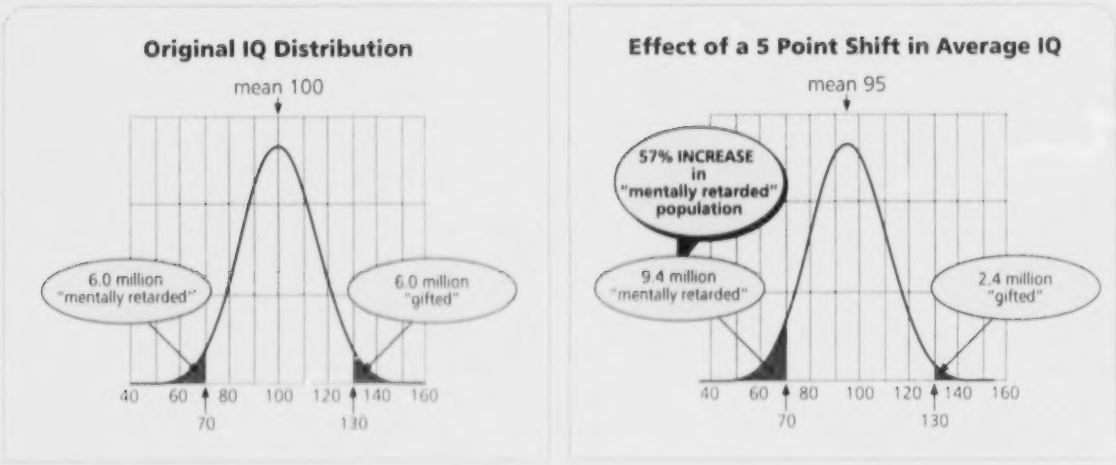
We live in a global world economy in which information increasingly figures as the currency of national wealth. Our nation's ultimate competitive resource is now the intellect, training, and creative capacity of citizens. Lacking these, we will be left behind.

As Timothy Wirth (2000) of the United Nations Foundation describes this circumstance, "In a society of 260 million people with an average IQ of 100, 2.3% of the population would have an IQ of less than 70. That translates to 6 million people with IQ scores that define mental retardation. On the other end of the curve, 2.3% of the population would have IQ scores above 130. In other words, 6 million people would be categorized as 'gifted.'" The figure above depicts the US normal distribution of IQ.

According to Wirth, a lowered average IQ of just five points—from 100 to 95—would shift the number of persons with low IQs dramatically. As the figure on the following page shows, the number of persons with IQ scores in the range of mental retardation would increase 57%—from 6 to 9.4 million. Conversely, the number deemed "gifted" would drop 60%, from 6 to only 2.4 million.

The economics of these data is transparent. The social costs of caring for a larger fraction of the population classified as mentally retarded far exceed those of environmental protection. Using this same analysis, society loses the creativity and intellectual leadership of 60% of potentially "gifted" individuals—the Bill Gates, Steven Spielberg, Tiger Woods, and others.

This implies that elimination of lead from gasoline and paint perhaps was one of the most significant education advances of the twentieth century. Current research shows a 10-point drop in blood lead level means an average 2.8-point IQ gain. Blood lead level plunged 15 points after lead was removed from gasoline in the US (Weiss, 1997). This gives every baby born today a "gift" of four to five IQ points. Conservative calculations suggest each IQ point is worth about $8,300 in additional lifetime income. With about 4 million babies born annually, the elimination


Original IQ Distribution
mean 100
6.0 million "mentally retarded"
6.0 million "gifted"
40 60 70 80 100 120 130 140 160
Effect of a 5 Point Shift in Average IQ
mean 95
57% INCREASE in "mentally retarded" population
9.4 million "mentally retarded"
2.4 million "gifted"
40 60 70 80 100 120 130 140 160

of lead has an economic value of over $100 billion per year for the lifetime income of those children (Wirth, 2000).

Schools are crucial for our children to succeed and our nation to compete. Clearly, for them to provide the education and training our children require, learning must occur in an environmentally safe place—one that supports, and most certainly does not impede, intellectual growth.

What Makes Children Especially Vulnerable to Environmental Chemicals?

The special vulnerability of children to environmental chemicals demands that schools act to protect them.

Children are not little adults

Children are more often exposed to environmental threats than adults and more susceptible to environmental disease. This makes them highly vulnerable to chemical exposure. Of small size and still developing, they take in more food, drink, and air per pound of body weight. Also, children behave like children.

Children are still developing and remain vulnerable through adolescence

During prenatal development, infancy, and adolescence, children are growing and adding new tissue more rapidly than at any other period of their lives. Because their tissues and organ systems are still developing and mature at different rates, they are susceptible to environmental chemical influences over an extended time.

Children move through several stages of rapid growth and development. From conception to age 7, growth is most rapid. The ensuing years, through adolescence, bring continued growth, as crucial systems, such as the reproductive system, mature. Insulation of brain nerve fibers is not complete until adolescence. Similarly, air sacs in the lung, where oxygen enters the blood stream, increase in number until adolescence (Needleman, 1994).

During these critical years, as structures and vital connections develop, body systems are not suited to repair damage caused by toxins. Thus, if neurotoxins assault cells in the brain, immune system, or reproductive organs or if endocrine disruption diverts development, resulting dysfunction will likely be permanent and irreversible. Depending on the organ damaged, consequences can include lowered

intelligence, immune dysfunction, or reproductive impairment (Landrigan, 1998).

Children's immature systems are less able to handle toxins

Because organ systems are still developing, children absorb, metabolize, detoxify, and excrete poisons differently from adults. In some instances, children are actually better able to deal with environmental toxins. More commonly, they are less able and thus much more vulnerable (Landrigan, 1998). For example, children absorb about 50 % of the lead to which they are exposed, while adults absorb only 10–15 %. Their less developed immune system is also more susceptible to bacteria such as strep, to ear infections, to viruses such as flu, and to chemical toxins (Needleman, 1994).

Children eat more, drink more, and breathe more

Children consume more calories, drink more water, and breathe more air per pound of body weight than adults. Their body tissues more readily absorb many harmful substances and outside play heightens their exposure to environmental threats relative to adults.

US children ages 1 to 5 eat three to four times more per pound of body weight than the average adult. Infants and children drink more water on a body-weight basis and they take in more air. Differences in body proportions between children and adults means children have proportionately more skin exposure (NRC, 1993).

Children behave like children

Normal activities heighten children's vulnerability to environmental threats. Their natural curiosity, tendency to explore, and inclination to place their hands in their mouths often opens them to health risks adults readily avoid.

Young children crawl and play on the ground or floor and play outside. These natural proclivities expose them to contaminated dust and soil, pesticide residue, chemicals used to disinfect or clean, garden weed-killers, fertilizers, and other potentially hazardous substances.

Air pollution impacts children more because they are frequently outdoors and physically active. They thus breathe pollutants more directly and deeply into their lungs.

Children's natural curiosity leads them to explore situations that could expose them to environmental hazards. For example, they may enter fenced-off areas or polluted creeks and streams (Bearer, 1995).

Children have more time to develop disease

Children's longer remaining life span provides more time for environmentally induced diseases to develop. Exposure to carcinogens as a child, as opposed to adult, is of particular concern since cancer can take decades to develop (Landrigan, 1998).

THE CONDITION OF OUR SCHOOLS

Many of our nation's schools seriously threaten children's health. The average US public school is 42 years old (USED, 2000). Most have not been renovated in the past 20 years. Public elementary and secondary enrollment is expected to swell another million between 1999 and 2006 to an all-time high of 44.4 million. Nearly 3,000 more schools are needed in the next few years to accommodate this flood (USED, 2000).

Schools are four times more densely occupied than many offices, and students are placed in trailers and attend school in shifts to manage overcrowding. The US Government Accounting Office admits, "While laws compel children to attend school, some school buildings may be unsafe or even harmful to children's health." Half of schools the GAO surveyed self-reported at least one unsatisfactory environmental condition; estimates for repair costs ran over $112 billion (USGAO, 1995).

According to American School and University's *29th Annual Maintenance and Operations Cost Study*, school districts spend more now to maintain and operate their buildings. However, in terms of the total budget, maintenance and operation now receive a smaller portion of available funds. For the 1999–00 school year, school districts nationally dedicated slightly more than nine percent of their net current expenditures (NCE) to maintenance and operation—the third consecutive year of budget percentage reductions. This represents a marked cut from 1990 when school districts earmarked more than eleven percent of net current expenditures for maintenance and operation (Agron, 2000).

Congress has pledged to enact School Construction and Modernization Legislation to provide billions in funds to help local communities build and renovate 6,000 schools. Unfortunately this bipartisan measure failed during the last session of 2000, however an effort is underway to introduce the bill again in the new 2001 Congress. An Urgent School Repair Initiative was passed providing 1.2 billion in federal dollars to support emergency repairs, such as repair of roofs, plumbing and electrical systems, and meeting fire and safety codes, and technology-related construction activities.

As they send their child to school each morning, parents frequently bear in mind threats to their health and well-being. Violence, drugs, and other perils, but almost never toxic chemicals number among their concerns. However, many schools do pose serious health risks to children through exposure to toxins. Schools often are—

- built on contaminated land or near an industrial, commercial, or municipal site (e.g., chemical plant, airport, freeway, or landfill) that daily releases toxic chemicals into the air and surrounding community;
- routinely sprayed with toxic pesticides to kill pests (e.g., ants, cockroaches, or rodents), contaminating carpets and floors and leaving toxic pesticide residue throughout the sprayed area (e.g., on toys, supplies, and other items children may access);
- regularly applying weed killer and toxic fertilizers throughout school grounds, exposing children to residues as they play sports, use playground equipment, or traverse the campus;

- poorly maintained and cleaned, providing habitats for pests, molds, and allergens, and allowing toxic residues to accumulate; and
- of poor air quality, due to overcrowded classrooms, improper ventilation of portable and makeshift classrooms, and outdated, inefficient heating and ventilation systems.

The Growing Problem of School Siting

Our nation is rapidly moving to build schools to meet growing population and technology demands. However, no guidelines or criteria are in place for where to locate schools or how to avoid environmental health risks to children and staff. Dozens of schools are proposed for location on old industrial land poisoned with toxic chemicals. Others are proposed near industrial plants that daily release toxins into the air. Of equal concern, many existing schools already are located on such sites.

Across the country schools standing on or near contaminated land seek to define cleanup goals that protect children from harmful exposure to chemical contaminants. Parents of sick students are foremost among those who have identified contaminated school properties. Schools also struggle to determine whether nearby operating industries and other sources of chemical releases into the air, soil, or water pose health risks to students. School boards, local government agencies, parents, and school staff need guidance to define how close a contamination source can be to a school without being a serious health threat.

The Underestimated Harm of Pesticides Used in Schools

Pesticides—that is, herbicides, insecticides, rodenticides, miticides, and fungicides—are regularly used in and around school buildings. Most schools lack policies governing pesticide use even though they are dangerous and by definition meant to kill. School boards, parents, and teachers often assume that a chemical is safe simply because the federal Environmental Protection Agency (EPA) registers it and allows the public and certified applicators to use it. To the contrary, the agency certification process does not consider the toxic effects of a pesticide. It merely provides applicants the right to use the pesticide, much as a fishing license gives someone the right to fish—pay a fee, get a license. No one asks whether you know how to fish. For example, EPA announced last year that Dursban, a common pesticide used to control termites, is not "safe" and poses a significant risk to children even when used according to label directions.
Thirty years of use elapsed before EPA banned the pesticide chlorpyrifos (Dursban). Scientists have learned through investigating Dursban and other chemicals that our initial estimate of the impact of toxic substances on children's health underestimates the potential for harm. Extensive scientific evidence indicates pesticides harm children's developing nervous, hormone, reproductive, and immune systems, creating a whole generation of children increasingly hyperactive, slow to learn, disruptive in school, asthmatic, and afflicted with certain types of cancer (GBPSR, 2000; Landrigan, 1999; Tilson, 1998; NRC, 1993). As research and our understanding of children's special vulnerabilities improve, other chemicals once regarded as "safe" like Dursban will likely prove to pose health risks, especially to children.

The report *In Harms Way: Toxic Threats to Child Development* cites evidence that a small single dose of commonly used pesticides on a critical day of development can cause hyperactivity and permanent damage in the brain's ability to receive messages. The report also includes research that links combinations of pesticides—like those typically found in our groundwater from farming practices—with harm to the immune, hormone, and nervous systems (GBPSR, 2000).

What is not known about pesticides far outweighs what is known. The numerous pesticide formulations on the market, lack of disclosure requirements, insufficient data requirements, and inadequate testing make it impossible to accurately estimate the hazards of pesticide products upon single, much less lifetime, exposure. Further, we have little control over or knowledge of many of our exposures, making determination of risks and hazards still more complex.

Given this factual ignorance, waiting until all the facts are in means we continue to expose children to harmful pesticides in our homes, schools, and communities, underestimating immediate and long-term damage to their developing bodies.

Underestimated Harm of Dursban (Chlorpyrifos) and Continued Lack of Protection

Dursban™ has been widely used for more than 30 years as a home and garden insecticide. It is in the family of approximately 40 widely used organophosphate pesticides, known neurotoxic chemicals, that together can cause cumulative adverse effects. Chlorpyrifos is the active ingredient in Dursban and over 800 pesticide products. Due to the common uses of this chemical, primarily to control termites, it represents one of the most significant sources of organophosphate exposure in non-work settings. It is used extensively in schools and daycare centers. In June 2000, the Environmental Protection Agency banned the sale of chlorpyrifos (Dursban), once believed to be "safe" in homes and schools and on certain foods children commonly consume. This ban began an 18-month phase-out of sales of Dursban for uses that expose consumers and children. EPA also provided a lengthy period of several years for pest control companies and other applicators to exhaust existing stock of the poison. Great concern exists about the extraordinarily high risks associated with use during the phase-out period. Also, no public notice is required during phase-out for continued retail sale and use of existing stock. Production of phased-out products can continue through the end of 2000 for indoor, non-residential uses. Moreover, pest control companies could continue to sell Dursban treatments as long as they have stocks.

Source: Feldman, 2000.

Failure of the Regulatory System and Science

Most of the public believe that government agencies and regulations adequately protect children's health at school, or that some "authority" surely oversees school safety and takes great care to guard children from exposure to toxic chemicals. This assumption is often incorrect. Only a few very specific and limited laws and regulations are specifically designed to protect children—for example, regulation of asbestos in schools and lead in wall paint. A 1999 survey of New York State Education Department staff found that although the department is mandated to protect student health and safety, it does not require schools to employ school nurses; report student accidents, illness, or injury; or assign staff to help with environmental issues (HSN, 1999).

Many factors contribute to the lack of regulations and practices protecting children from exposure to toxic chemicals in the school environment. For one, special interest

lobbying heavily influences our current regulatory system. Chemical industry lobbyists have squelched many local, state, and national efforts to pass laws or regulations requiring schools to notify all parents of applications of toxic chemicals in or around schools or to set up environmental health committees. Lobbyists fear that a public notified and aware of the full extent of exposure and risk to their children will take steps to end toxic pesticide use.

Regulations alone are not the problem. Science hits definite limits in determining children's health risks. In the case of school siting, little science can definitively link a child's exposure to chemicals from industrial contamination or pesticides on school property to a specific health outcome. That does not mean no link exists, but that the scientific tools that assess impact are too crude to provide certainty.

For example, in a small New York rural community, 24 students, 5 teachers, and 3 custodial workers have cancer. All have attended or work at a public school sited on an old industrial site contaminated with cancer causing chemicals. However, because the population is small and information on how the chemicals affect growing children is lacking, an absolute cause and effect link cannot be proven.

The impact of chemicals on children is difficult to assess because of the dearth of information and scientific research. Of an estimated 87,000 chemicals in use today, the majority lack basic toxicity testing (USEPA, 1998). For those tested, important health effects are overlooked. EPA review of 2,863 of the most commonly used chemicals found no toxicity information available for 43% and a complete set of toxicity data for only 7% (USEPA, 1998a). Toxicity refers to whether a chemical can cause harm. Currently, much attention is given to whether a chemical can cause cancer. Other important health effects, such as impairment of the immune, hormone, reproductive, or nervous systems, generally receive much less research. Finally, almost no research addresses health effects for either children or adults from exposure to low dose chemicals in combination.

School Board Accountability

Local school board members live, work, and play in or near the community. Whether elected or appointed by local government officials, they should be accountable to the local community.

In some cases, school boards have been very responsive to public concern. Some have taken proactive steps to protect students, staff, and the public at schools by limiting pesticide use or choosing not to build on contaminated land. However, many take a "politics as usual" position that blames bureaucracy to avoid accountability when things go wrong.

For instance, many documented cases expose local school board silence about pesticide use in, and land chemical contamination beneath or next to, their school. School administrators fear lawsuits from parents, teachers, and others for placing children and personnel in harm's way. School boards also dread the cost of cleaning up contamination or replacing a school.

In Marion, Ohio, for example, the school board feared lawsuits once exposure of children to chemicals buried beneath and around school property by an abandoned military depot was uncovered. School students had a higher than normal rate of leukemia and other rare cancers. The school board deferred to experts who denied any

serious health risk rather than to experts who judged health risks to be too high and possibly responsible for the leukemia cluster.

Only years of community activism brought the school board to limit access to certain school-ground areas with high concentrations of contaminants, or "hot spots." However, not until the Department of Defense agreed to discuss appropriating funds to help pay for a new school would the board consider construction of a new school. In November 2000, county voters approved a bond that would provide funds to build a new school, but building will not be complete until 2003. Meanwhile students remain exposed to the documented contamination.

A Charleston, South Carolina, school also shirked accountability when a pesticide was mistakenly sprayed into a classroom instead of the building's foundation, soaking carpets and desks where students sat the next morning. At least 40 children were affected by the exposure and some remain ill. Most commonly, they suffered aggravated asthma and coughing, peeling hands and feet, headaches, and nausea. The school failed to notify parents until more than a month had passed and to undertake thorough cleanup until months later. It has now notified all parents in an effort to monitor students' health.

Parents Are Often Kept in the Dark

Parents, teachers, and concerned citizens have a right to know about health and safety risks to children in school.

Despite current right-to-know laws, parents remain in the dark concerning hazards in the school environment. Few laws mandate schools to give advance notification of pesticide use and none mandate parental, teacher, and community involvement in school-based decision-making. Parents often are not told how land being considered or purchased for a school was previously used. Nor does the state department of environmental protection provide notice when a nearby industrial facility has been permitted to release chemicals into the environment.

When parents do request information through right-to-know or freedom-of-information laws, school districts often are unable or unwilling to produce basic information about school pesticide use or contaminants and hazards on or near school grounds. Even when state laws require notification and use of integrated pest management, they often are not enforced and not implemented.

Few parents realize they have a right to this type of information from school districts, and few districts apprise them of it or provide information without a formal written request. Schools should offer all safety information including fire safety inspection reports, emergency management plans, asbestos reports, indoor air quality tests and evaluations, records of pesticide applications, and copies of Material Safety Data Sheets, which comprise toxicity, health, and safety information about products used in schools and much more.

The following sections describe problems where schools have been built on contaminated lands and where new schools are proposed for such sites; how use of toxic pesticides contaminates schools; and the urgent need for right-to-know provisions for parents and school personnel around all school and chemical risk issues.

POISONED SCHOOLS: BUILDING ON CONTAMINATED PROPERTY

Overcrowded, dilapidated, technologically obsolete schools pose a national crisis. The average public school is over 42 years old (USED, 2000). Nearly half of all schools lack the electrical wiring needed for today's computer systems (USED, 2000a). At the same time, schools show record enrollments (USED, 2000a). To address this problem federal and state funding is being sought to provide billions of dollars for construction and renovation of public schools (USED, 2000b).

While smaller class sizes and access to modern technology are critical to improving children's opportunity to learn, so is minimizing health risks posed by unsafe school renovation, construction, and siting in contaminated areas. Children's right to a good education includes freedom to learn in an environment that does not jeopardize health.

CAMPAIGN GOALS

Ensure parent, teacher, student, and community right-to-know. This means involving them in decision-making processes about pesticide use and school siting and notifying them in advance of health hazards associated with pesticides and contaminants on or near proposed or existing school property.

Ensure that new schools are built on land that poses no unnecessary health risk to children from contaminated soil, air, or water releases.

Ensure that contaminated school property is brought to standards protective of children. If cleanup is not possible, remove students, teachers, and staff from schools built on or near sources of contamination that pose serious chemical health risks.

Factors that Influence Where New Schools are Located

School districts chronically lack resources required to meet renovation and construction needs. Often pressure to reduce expenses and expedite the process encourages shortcuts. As a result, far too many schools are located on cheap land near or on contaminated property. This is not only a problem of the past, but imperils our present and future.

The push to build new schools is complicated by the dearth of appropriate sites. In urban school districts, need is often greatest in densely populated neighborhoods that lack vacant land. Building new schools in these communities can mean condemning and clearing existing homes and businesses or siting schools on previously industrial property. In other instances, schools are built on cheap land far from the community served, in industrial or agricultural areas. Wealthy residential communities often deny sites for schools that would serve students of color or low income. A school site proposal in Watsonville, California, captures this scenario (see page 22).

School siting is complex, involving many factors:

- Communities of color and low-income eagerly await new, technologically advanced schools with resources needed by their children since most of their schools are old and rundown, often with asbestos, lead, and mold problems. These schools lack resources for providing learning skills essential to compete in current and future job markets. Parents in these communities

often face an unfair decision: accept siting on inexpensive contaminated land so that funds remain to procure needed technology, or build on expensive environmentally safer property, depleting funds for teaching resources.

- Teachers and administrators also prefer new schools, especially with fewer students per classroom, new computers, and more resources for children and staff. They face the same dilemma: either cheap contaminated land with more resources or safer property with fewer resources.

- Urban areas face choices still more complex. Fairly clean areas are often green space for public parks or recreation. Citizens must ask whether such use or safely housing school children is more important.

- Often no investigation of past land use precedes construction, leaving discovery of chemical contamination until after resources are committed.

- Neighborhoods near industrial complexes and contaminated sites are hard pressed to site a "neighborhood" school out of harm's way. How can school grounds be "cleaner" than neighborhood homes subject to continuing contamination?

- Finally, no protective standards exist to guide school officials assessing "risk" to children when considering a site once used for industrial purposes or near an industrial complex.

Dozens of schools nationwide have been built on or near contaminated land. Taxpayers provide billions of dollars for cleanup, construction of replacement schools, and medical treatment of disease in exposed children. Either we will learn from the tragedies of past mistakes or repeat them.

The following is a partial list of schools this campaign has identified that either (1) will cause unnecessary health risks to children, teachers, and other school personnel if built, or (2) already put school populations at serious risk.

Case Studies of Poisoned Schools

Love Canal, Niagara Falls, NY — Toxic Waste Dump

Most know of the Love Canal dumpsite in Niagara Falls, New York. Twenty thousand tons of chemicals were buried in the neighborhood's center and eventually leaked out into the surrounding community. The 99th Street Elementary School was on the perimeter of the dump, and the 93rd Street School just two blocks away. Both closed in 1978 after extensive testing revealed high levels of chemical contamination on and around them. Love Canal was the first community to close schools due to potential health risks to children. Despite the high visibility of that struggle and increasing documentation of health risks environmental hazards pose for children, schools still are built on or near similarly hazardous areas.

Los Angeles, CA — Former Oilfield and Industrial Site

The Belmont Learning Complex, dubbed America's most expensive school with its anticipated $200 million price tag, was proposed in 1985 by the Los Angeles Unified School District as a middle school to alleviate

overcrowding and serve mostly Latino students from many of LA's poorest neighborhoods. The project ballooned into a proposed 35-acre, state-of-the-art, Internet-connected high school campus, with a shopping mall to jump-start area commercial development, 120 affordable apartments to address housing needs, and classrooms and innovative "academies" for 5,000 students. More than ten years later, the half-built brick building stands abandoned. Parents learned what the school district already knew—explosive methane gas, poisonous hydrogen sulfide, volatile organic compounds such as acetone, the carcinogen benzene, and residual crude oil saturated the earth where the school was being built, a former oilfield and industrial site. When construction halted, over $123 million was already spent.

Marion, OH—Military Dump

River Valley High School and Middle School stand on the former site of the US Army's Marion Engineering Depot, part of which served as a dumping ground in the 1950s. In 1990, community members formed a group in response to alarming rates of leukemia and rare cancers among former students. Their efforts led to an investigation that revealed widespread campus contamination. Today, no one may exit back doors of the middle school or access several playing fields. Parents want the schools closed and new facilities built in a safe area. Recently a bond issue passed to fund a new school, but students remain on the contaminated site until completion.

Jacksonville, FL—Incinerator-Ash Dump

This predominantly African-American community has a long history of contamination. From 1943 to 1969, four sites served as incinerator-ash dumping grounds. The ash contained high levels of lead, dioxins, and PCBs. Mary McLeod Bethune Elementary School was built on one site that tests found highly contaminated. Residents want the school closed and nearby residents and businesses relocated.

Sarasota, FL—Agricultural Land

Brookside Middle School was built on a former orange grove contaminated with DDT, chlordane, and several other now-banned pesticides linked to reproductive, developmental, and neurological disorders. A new school is going up on Brookside's former ball field, near the area where pesticide contamination is highest. Construction creates dust and surface water contamination as students at the nearby school play outdoors.

New Orleans, LA—Garbage Dump

When a $7 million elementary school was built atop a dump in 1983, concerned New Orleans parents demanded soil testing. In 1986 test results documented high levels of contamination including arsenic and lead. The school and surrounding neighborhood were placed on the Superfund list, and the school was closed.

Corry, PA—Industrial Plant Emissions

The school board in Corry decided to consolidate four of five small elementary schools into one large school for over 1,000 students. The site chosen sits next to Foamex, a polyurethane foam manufacturing plant that ranks second statewide for hazardous air emissions, annually sending approximately two million pounds of hazardous chemicals airborne.

Providence, RI—Two New Schools on a Dump, with More Planned

Parents brought an environmental racism lawsuit to challenge construction of an elementary school and a middle school on land used as a garbage dump for at least 25 years. Environmental testing revealed unsafe levels of lead, arsenic, and petroleum products. Eighty percent of city public school students are non-white. After a hearing, the

elementary school was allowed to open and middle school construction to continue, with the condition that children remain indoors with windows and doors closed during construction.

The middle school stands completed and both schools are now operating. Parents are determined to press the lawsuit to shut down the schools, even as school officials proceed to build yet another elementary school on contaminated land, the site of a factory that burned down years ago.

Houston, TX—
Industrial/Chemical Complex

To relieve overcrowding, the city council created a special taxing district to help cover the $76 million cost of constructing a new school. The proposed school, named for Cesar Chavez (long-time leader of the United Farm Workers Union), will be a modern, fully-equipped facility with enough computers, laboratories, sport fields, and classrooms for 3,000 mostly Latino students. Within a quarter mile of the proposed site, industries spew nearly five million pounds of toxic pollution into the air annually. Students who train on the track will be next to property where a chemical flare burns gasses the plant releases.

East Chicago, IN—
Open Dump for Contaminated Soil

The US Army Corps of Engineers plans to dredge Chicago's Indiana Harbor and Ship Canal, one of the nation's most industrialized and polluted areas. The Corps proposes to place seriously contaminated dredge sediment containing PCBs, heavy metals, and other chemicals in an open dump within a half-mile of East Chicago Central High School and West Side Junior High. PCBs are known to volatilize and travel in the air. East Chicago students are more than 90% Latino and African-American.

Risks from PCB exposure are well-established (ATSDR, 1998, 1997; Longnecker, 1997). Children are particularly vulnerable to neurological and developmental effects from exposure. Other sediment toxins include benzene, toluene, lead, and mercury, all associated with serious adverse health effects, particularly in children. Local activists demand a different dumpsite, safer dredging technology, and pre-treatment of sediment to remove toxins. The Corps argues that such approaches, though effective in eliminating the PCB problem, would be cost prohibitive and no other sites are large enough to receive the sediment.

Athens, NY—Power Plant

Athens citizens have formed Stand Together to Oppose the Power Plant (STOPP) to thwart Pacific Gas and Electric's proposal to locate a natural-gas power plant on the Hudson River. The plant would draw massive amounts of PCB-contaminated water into its operations at a site approximately 1/2 mile from a local elementary school. Volatized PCBs would contaminate the air and soil of the surrounding community and elementary school. In addition, STOPP fears increased fuel truck traffic on routes traveled by school buses and where children wait for buses. Fogging and icing of routes would also occur around the plant as steam produced in colder months fell to the ground.

Watsonville, CA—Surrounded by Airport, Landfill, Pesticides, Freeway

Pajaro Valley Unified School District has proposed a 2,400-student school less than 3,000 feet from the runway of the Watsonville general aviation airport, and 3,600 feet from a 134-acre county solid-waste landfill, which is also a collection center for toxic and hazardous wastes. A toxic pesticide, methyl bromide, is applied presently on the proposed site and on adjacent fields. A cattle feedlot is the locale's neighbor to the west,

and a freeway borders the east boundary. If built, it would put low-income students of color in a school isolated in an industrial and commercial/agriculture zone far from most of their homes. Airport land use regulations would be broken. (A tragic helicopter crash claiming two lives occurred recently within a mile of the school site.) Alternative school sites are plentiful throughout this school district of 20,000 students, which has the fifth largest geographical area in California. Citizens, farmers and city officials, however, from the alternative sites oppose the high school being placed in their area because the students of color would be bused into their neighborhood. The students and their parents believe they are victims of blatant racism.

Tucson, AZ—Industrial Plants

Sunnyside Elementary and Junior High Schools serve primarily Mexican-Americans in Tucson's Southside. Many who attended during and after the 1950s later developed cancers and leukemia. By 1981, area wells used by these schools and many nearby homes were shut down due to industrial contamination from a groundwater plume of trichloroethylene (TCE) and other toxins migrating from military-related industries. Residents formed Tucsonians for a Clean Environment, and won local support for environmental justice activities, including a health clinic for persons poisoned by TCE.

Today Tucson's Southside faces a new toxic threat from a military contractor. In 1983 Brush Wellman built a facility near Sunnyside High School, Sierra Middle School, Los Ranchitos and Los Amigos Elementary Schools, and the same facilities that had dispersed TCE. It processes beryllium, a lightweight metal the military uses that causes a fatal and incurable lung disease twenty-five employees have already contracted. Beryllium traces have been found on Los Amigos and Los Ranchitos grounds, perhaps exposing susceptible children. Authorities maintain that levels found at the schools are safe.

Paterson and Clifton, NJ—Industrial Air Pollution and Chemical Storage

Virtually every Paterson and Clifton school is near a significant source of industrial air pollution or a facility that stores large quantities of hazardous chemicals. In Paterson—60% non-white and one-third of children in poverty—24,500 K–12 students attend school close to one or more of 98 industrial facilities that store toxic chemicals or send them airborne.

In June 1998, release of a toxic cloud of cresol at Heterene Chemical Co. Inc. less than a 0.25 miles from School 20 forced evacuation and hospitalization of more than 50 children and school personnel. The company denies any responsibility, despite citation by regulatory agencies and indictment. The same school is also only 0.3 miles from Okonite Co. Inc., with its massive stores of polychlorinated biphenyls (PCBs), trichloroethane, propane, and heavy metals such as lead and copper; and just 0.8 miles from Crown Roll Leaf, the county's worst air polluter.

Paterson's School 10 was evacuated twice in one week in March 1999 after students and staff were exposed to toxic fumes fire officials suspect came from one of many local companies. Six months earlier, Brown Chemical Co. released 1,000 gallons of nitric acid across from the school, forcing 1,050 students to remain inside, windows shut. Five years earlier, a 2,000-pound nitric acid leak from Brown required school evacuation.

Elmira, NY—Industrial Site

Several Southside High School parents concerned about high cancer rates among students and past graduates want the school closed and relocated. Twenty-four students, five teachers, and three custodial workers have contracted cancer. A number of residents living near the school also report high cancer rates among family members. The school property is on land that has been home to several factories since 1887 and now neighbors a long-time manufacturing complex, much of which was dismantled in 1977 to construct the school. Soil testing at the time showed "relatively widespread contamination by a refined petroleum product" topped by "unsuitable" fill. Parents have been unable to confirm that a cleanup ever occurred.

The school district Health and Safety Hygienist claims "Today red flags would be flying all over the place; it's a former industrial site." The neighboring factory spent $900,000 to remove 2,000 cubic yards of contaminated soil. The NY State Department of Environmental Conservation (NYDEC) reports that petroleum tanks buried beneath the school have polluted nearby soil and a pond. It is pumping oxygen into the ground to break down the fuel oil. Soil and air tests reveal high levels of volatile organic compounds and other carcinogenic chemicals. Nevertheless, the State Department of Health claims children are not exposed to chemical levels of concern. Despite plans to relocate children if testing reveals a problem, the school district has decided to keep the school open with athletic fields off-limits to students and the public. Parents see no alternative to closure.

These schools are only a sampling of far too many built on or near contaminated property, placing students, staff, and the public at serious environmental health risk.

THE RUSH TO BUILD NEW SCHOOLS—WITHOUT PROTECTIVE GUIDELINES

Former Department of Education Secretary Richard Riley for years pushed for an appropriation bill to provide funds for nationwide school construction and renovation. Such funds would add fuel to states' rush to build and renovate schools. In Massachusetts, for example, school construction is already underway or planned in over 150 communities. However, no federal standards exist to guide school officials in assessing the health risks a piece of property or neighboring facility may pose to children. Consequently decision-makers default to what they do in similar circumstances—hire experts to measure chemicals in the soil, water, and air and undertake a health risk calculation, usually focused on cancer and based on adult exposure to a single chemical.

Calculating risks based on health effects found in adults weighing 160 lbs, exposed for a lifetime (70 years), and behaving like adults is totally inappropriate for children. Children are not little adults. Scientists are just now beginning to understand that children are much more susceptible to adverse health and developmental outcomes from exposure to chemicals than adults. Additionally, children are rarely exposed to one chemical at a time, but rather to multiple chemicals simultaneously. No risk calculation considers the combined effect of many different chemicals interacting with each other on children's growing bodies. More important, most chemicals lack basic toxicity testing. For those tested, impacts on developing reproductive, immune, hormonal, and nervous systems are rarely investigated.

Brownfields and Schools

Lack of protective guidelines is of significant concern when decisions are made whether to locate a school on what is traditionally termed a "brownfield." The Los Angeles Belmont High School disaster tragically depicts what can go wrong without protective guidelines and standards to direct the process.

The Environmental Protection Agency (EPA) describes brownfields as "abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination" (USEPA, 1995). Anyone who purchases property officially designated a brownfield is free of liability for any contamination that may be found. In fact, no environmental testing is required to so designate a site.

More importantly, when these sites are redeveloped, they need only be cleaned up to standards set for commercial or industrial property. Such standards vary among states, counties, and cities but all provide less protection of human health than those required for residential property. Designation as a brownfield is essentially a promotional real estate tool to encourage businesses to purchase and redevelop areas in order to stop sprawl and bring jobs and revitalization to urban areas. Such property is not intended for siting schools, parks, or playgrounds. Brownfields traditionally are in densely populated urban areas, but also are in rural locations (e.g., agricultural land, abandoned mine areas, burn dumps, abandoned lumber mills).

Brownfield development is an environmental justice issue since primarily communities of low income and color live where they are located. Due to lack of unused property, especially in urban areas, schools confronting growing student enrollments see brownfields as the only option for keeping schools in close proximity to the community served.

How are we to determine whether any property, including brownfields, is environmentally safe for young children and school personnel when no appropriate guidelines are

in place? Clearly much more thought and research and new laws are required to ensure our children's protection. However, California has recently taken the initiative to seriously examine this issue. Their approach provides a working model for other states to follow.

A Model for Siting New Schools: California's Approach

Responding to the many cases in California where dangerous levels of contamination were found on brownfields and other sites redeveloped as school sites, the California state legislature passed two laws in 1999 requiring that the Department of Toxic Substances Control (DTSC) be involved in the environmental review process for the proposed acquisition and/or construction of school properties utilizing state funding (CDTSC, 2000). This environmental review process provides the information needed to determine if the selected properties are free of contamination, or if the property is contaminated, that it is cleaned up to a level that is protective of the students and faculty who will occupy the new school.

The brownfields issue—highlighted by the Los Angeles Belmont High School fiasco and other similar cases in Southern California—largely prompted the passing of this new legislation. While there are pros and cons to using brownfield properties, the Department of Toxic Substances Control made the following recommendations about these sites with regard to school construction:

- While most properties can ultimately be cleaned up if time or costs are not a factor, significantly contaminated sites should be dropped from further consideration as a school site after the Preliminary Endangerment Assessment is completed (see page 31). Other sites should be evaluated in these cases.

- Schools should not be located in areas with brownfields surrounding the proposed location. The proposed location could be "clean"; yet there may be significant unknown contamination in close proximity that may impact the school site and children's health.

- Brownfields and their surroundings must be carefully scrutinized (and some should be dropped from consideration completely) to ensure that their selection represents a truly safe environment for school children. All properties must be cleaned to the DTSC residential soil standards (the strictest state standards), regardless of their status as a brownfield site (CDTSC, 1999).

Prior to this legislation, there was no state oversight of the acceptability of properties considered for acquisition as a school site. A legislative task force found that the Department of Education consistently signed off on properties before a complete site assessment had been completed (CDTSC, 1999). Now, as of January 1, 2000, California schools can no longer self-certify that a site meets specified standards. They must obtain approval from the California Department of Toxic Substances and Control before they can access state bond funds for site acquisition (CASH, 2000).

In response to the schools contamination issue, the DTSC formed a dedicated unit to work with the California Department of Education to identify existing schools with known or potential contamination and address concerns at these sites (CDTSC, 1999). Many successes in effectively evaluating proposed and existing school sites for potential health risks have occurred in California through this cooperative approach.

Below are a few examples of these successes.

SUVA Elementary and Intermediate Schools—Montebello, CA

Responding to public concern over the possibility of adverse health effects occurring due a school's location adjacent to a chrome plating facility, DTSC coordinated an expedited multi-agency/multi-media environmental investigation. Within six months, DTSC held public hearings to hear parent and community concerns, conducted a thorough school investigation, oversaw removal of contaminated soil from school grounds, and ordered the plating facility to take measures to prevent contaminant exposure of Suva School children. DTSC also identified problems with lead paint, resulting in a school-district-wide, large-scale lead abatement program.

Pacifico High School—Oxnard, CA

Oxnard Union High School District officials approached DTSC with a time-critical need to evaluate a site on which they proposed to build a much-needed new Pacifico High School. Plans stood in jeopardy if the district failed to obtain Department of Education approval contingent on conducting a Preliminary Endangerment Assessment (PEA) with DTSC approval. DTSC worked closely with the district and its consultant to conduct an expedited, yet thorough, PEA. The site was investigated and a human health risk screening analysis conducted, whereupon the district received a DTSC letter confirming that the site was safe.

Monroe Primary Center—Panorama City, CA

In April 1999 DTSC agreed to oversee a Phase I and Phase II investigation of Los Angeles Unified School District property proposed for a primary center (school for grades K-3). The site was vacant, though it once provided housing. Investigation showed unacceptably high levels of lead and pesticides in surface soil. The soil was excavated and removed to an approved disposal facility. The top seven feet of soil were then graded to prepare the site for school construction. In this process, three septic tanks and two cesspool areas were discovered and removed. DTSC recommended further soil sampling in those areas, after which the site was judged to pose no risk to human health or the environment. DTSC issued a "No Further Action" letter in June 1999, and school construction proceeded immediately.

The *Child Proofing Our Communities: Poisoned School Campaign* reviewed the new California legislation and CDTSC environmental review process and judges it to be progressive in scope of evaluation of proposed school sites and in government oversight. Yet it falls short in many areas, including public participation and notification, survey of surrounding school sites for potential sources of contamination, cooperative oversight by health department officials, provision for buffer zones, and child-protective standards.

Using the California legislation and environmental review process as a model, the campaign's School Siting Task Force—which represents groups nationwide working on this issue—developed School Site Acquisition Guidelines and Recommendations for existing schools faced with a contamination problem and for siting new schools. These guidelines and recommendations are only meant to be an interim means to make decisions. A more complete, scientifically based set of guidelines must be developed that considers children's special vulnerability to multiple chemical exposures.

GUIDANCE FOR ACQUISITION OF SCHOOL PROPERTY AND FOR EXISTING SCHOOLS

Recommendations for School Site Acquisition

- Participation in the school site acquisition process should be available to parents, age-appropriate students, teachers, and community members.
- To ensure precautionary approaches are taken when locating new schools, a complete site history, site visit, survey of surrounding potential sources of contamination, and testing and evaluation of potential health risks to children should be part of any site proposal. When there is cause for concern, another site should be chosen.
- Under no circumstances should a school be built on top of a hazardous waste, garbage, or other landfilled property.
- When other sites are not available, the proposed school property should be cleaned up to standards that protect children.
- No source of contamination, such as a landfill or containment facility, should be built or established within 1,000 feet of a school or Head Start facility. Nor should industrial or other facilities releasing chemicals be built or located within 2 miles of a school.

A Four-Step Process for Evaluating Sites

Whether acquiring a new site or evaluating an existing site, a four-step process can guide parents, students, school board members, regulating agency personnel, and others: (1) involve the community in the site selection process; (2) undertake an environmental assessment; (3) determine whether a preliminary endangerment assessment is warranted; and (4) remediate if necessary.

Step One: Community Involvement in Site Selection

A school district should notify parents, staff, the surrounding community, and "feeder" schools of plans to locate a new school and invite them in writing to participate.

A school siting committee should be formed comprising the school district governing board, parents, teachers, the school nurse or health unit director, age-appropriate students, surrounding community members, local public health persons, the school environmental health committee (if one exists), and/or environmental advocacy groups. An early step for such a committee would be to conduct a School Siting Survey as described in Appendix A.

Step Two: Environmental Assessment

Once a site is proposed, the school district should contract with an environmental assessor to conduct a three-phase environmental assessment that is designed to collect information on current and past site uses and to conduct initial environmental sampling at the site. This assessment should include:

- Phase I: conduct a site history by reviewing public and private records of current and past land uses, historical aerial photographs, environmental databases, federal, state and local regulatory agencies' files; a site visit; and interviews with persons familiar with the site's history.
- Phase II: grid sampling and analysis of soil and groundwater. Air should be sampled if stationary sources of air pollution are near the proposed site, potentially exposing

children to higher levels of pollution than found in their own communities. Any surface water should also be sampled.

- Phase III: identification of property within 2 miles of the site, including industrial sites and discharges, chemical storage facilities, facilities found in EPA's Toxic Release Inventory (TRI), waste treatment plants, landfills, military sites, research facilities, and Department of Energy sites.

The state's departments of environmental protection and health should review the assessment and approve, disapprove, or request more information.

Step Three: Determine Whether a Preliminary Endangerment Assessment (PEA) Is Warranted

Based on the information gathered, the Environmental Assessment should conclude that either 1) no recognized environmental conditions were identified or 2) a more extensive site assessment - a PEA - is necessary. If no action is required at the property, then the property is suitable for school site development. If a PEA is to be conducted, a school district has two options. It can either proceed to contract with a qualified environmental assessor to conduct a PEA of the property, or it can drop the school site from further consideration.

The data collected during Environmental Assessment are used to determine if a PEA is warranted at a site. The results of the environmental sampling define the extent of contamination at the site. Campaign members carefully explored what guidelines or standards exist to evaluate or compare the results of the environmental sampling. We found that most official judgments of "safe" or "acceptable" levels of contaminants in soil are based upon cancer risk assessments for adult bodies, behavior, and life expectancy. Children are not little adults. Indeed, most are more exposed than adults because of their behavior and more vulnerable to toxics because they are developing. Moreover, cancer is not the only health-risk at issue.

We found no health-based child-sensitive standards at the federal, state, local, or any level for determining "safe" levels of contamination in soil. Lacking such standards, parents, school districts, regulating agencies, and others are directionless as to how to evaluate contamination at new or existing sites.

Until health-based child-sensitive guidelines are developed, we believe that an interim approach is critical. Campaign members reviewed a number of state and federal cleanup and residential soil standards to identify those most protective. We found that New York State (NYS) cleanup standards were generally stricter than all others, as they consider not only human health risk, but also risk to fish and groundwater (NYDEC, 1994). They include a factor designed to protect both groundwater and fish that would be impacted by groundwater contamination. Consequently, chemicals that move easily through groundwater generate stricter soil cleanup standards than chemicals that are less soluble.

The campaign recommends using the NYS standards on an interim basis. However, when a state where the school is located has a standard for an individual substance that is lower than New York State's, the lower level should be used. Some members of the Campaign are concerned that the NYS standards may not be fully child-protective. All agree on the need for specific scientific research to better understand health impacts on children exposed to multiple chemicals in soil and groundwater.

New York State Soil Cleanup Standards for Chemicals Commonly Found in Soil at Contaminated Sites

Solvents		toluene	1.500	PCBs	1.000
acetone	0.200	vinyl chloride	0.022		
benzene	0.670	xylene	1.200	**Metals**	
2-butanone	0.300	pentachlorophenol	3.000	arsenic	7.500
carbon tetrachloride	0.240			barium	300.000
chloroform	0.300	**Pesticides/other**		cadmium	1.000
1,1-dichlororethane	0.200	aldrin/dieldrin	0.041	chromium	10.000
1,2-dichloroethane	0.350	chlordane	0.540	lead	400.000
methylene chloride	8.900	chrysene	0.400	mercury	0.100
tetrachlorethene	5.700	DDT/DDE	2.100	nickel	13.000
trichloroethene	2.800	naphthalene	13.000		

Note: values are parts per million (ppm)

Above is a list of chemicals USEPA and the federal Agency for Toxic Substances and Disease Registry identify as the most common found at Superfund sites (USEPA, 1995a). NYS soil cleanup levels for these chemicals are included. NYS standards for a more extensive list of substances are available from CHEJ or from the NYS DEC website (www.dec.state.ny.us/website/der/tagms/prtg4046.html). *Children should not be allowed on any site with contamination above these levels.*

If the environmental sampling data collected during the Environmental Assessment indicate that contamination levels exceed the NYS standards, then a PEA is warranted at the proposed school site.

Data collected during Phase III of the Environmental Assessment is also used to determine if a PEA is warranted. If a proposed school site lies within 2 miles of one of the following potential sources of contamination, then a PEA is warranted:

- hazardous waste, industrial waste, or municipal waste disposal site
- land contaminated by refineries, mines, scrap yards, factories, dry cleaning, chemical spills , and other contaminants
- agricultural land
- dust generators such as fertilizer, cement plants, or saw mills
- leaked gasoline or other products from underground storage tanks
- high radon levels
- concentrated electrical magnetic fields
- high concentrations of vehicular traffic, an airport, or a bus depot
- industrial plants and facilities
- a designated brownfield site
- a railroad bed
- industry listed in EPA Toxic Release Inventory (TRI)

Preliminary Endangerment Assessment

A Preliminary Endangerment Assessment (PEA) will be conducted if either 1) the environmental sampling data exceed the NYS standards, or if 2) the proposed site lies within 2 miles of a list of potential/existing sources of contamination. The primary objective of the PEA is to determine if there has been a release or if there is a potential release of hazardous substance, which could pose a health threat to children, staff, or community members. The PEA would include evaluating site sampling and analyses conducted during the Environmental Assessment, preliminary determination of the type and extent of

hazardous material contamination, and preliminary evaluation of risks actual or potential contamination may pose to children's health, public health, or the environment (CEPA, 1994).

In California, the PEA must meet CDTSC PEA Guidance Manual requirements (see the Resources section for contact information) and be approved by the DTSC. The evaluation should include:

- Description of health consequences of long-term exposure to hazardous substances found on site.
- Description of all possible pathways of exposure to those substances by children attending school on site.
- Identification of which pathways would more likely result in exposure (CEPA, 1994).

If the PEA determines that the site has a significant hazardous materials contamination problem, the school district must either find more suitable property or fund a cleanup plan that would reduce contaminant levels to the NYS standards listed above (see page 31). The remediation process would include a more comprehensive site investigation in order to determine the extent of cleanup needed at the site.

Step Four: Remediation and Response

If PEA approved by the departments of environmental protection and health determines that site remediation is necessary, the school district must do all of the following or not acquire the site:

- Prepare a financial analysis to estimate and compare soil cleanup costs only for various methods that meet the most protective standards. It is recommended that a minimum of four feet of contaminated soil be removed from the site, replaced with clean soil, and an impermeable barrier placed between the remaining soil and clean soil. From the edge of the barrier, two feet of soil should be removed for a distance of 1,000 feet, replaced with clean soil, and a security fence that renders contaminated areas inaccessible to children installed.
- Evaluate the suitability of the site in light of recommended alternative sites.
- If cleanup is required, the district must contract with the departments of environmental protection and health for oversight and reimburse them for all costs related to review and/or cleanup action.

Funding Recommendations Modeled after California:

- The state should provide 50% of evaluation and remediation costs, including fees charged by the departments of environmental protection and health.
- Funding for these costs may not exceed 50% of a figure calculated by subtracting the school district's cost of the site from what the appraised value of the site would be after cleanup.
- Financial Hardship: The state should provide up to 100% of evaluation costs for eligible hardship districts.
- Environmental Hardship: School districts may apply to the state for site acquisition funding prior to approval of construction plans for the site by the state architect and Department of Education.
  The project is eligible for environmental hardship funding if:

- The remediation plan approved by the departments of environmental protection and health is estimated to take more than 6 months to complete, and
- The Department of Education determined that the site is the best available.

Recommendations for Existing Schools

If a school has been constructed, effort must be made to ensure children's protection from new or existing sources of contamination nearby. We recommend the following:

- None of the above listed sources (see page 31) of contamination should be built/located within 2 miles of a school or Head Start center.

- The State Department of Environmental Protection should require operating facilities to provide nearby schools with early notice of any application for a permit or renewal permit for construction or location of industrial facilities.

- Industrial facilities operating near schools should hold annual public meetings to discuss hazard prevention strategies with parents, school personnel, local unions, and local media. Parents have a right to know about hazardous chemicals being stored and released into the air, soil, and groundwater and about potential negative health effects. They should initiate and be part of hazard prevention strategies.

- In cooperation with school science classes, teacher's unions, and the State Department Environmental Protection or universities, school districts should develop and support programs that enable students and school staff to monitor storage and air emissions of chemicals at nearby facilities. EPA currently funds similar programs under its Air CURRENTS Project using state-of-the-art portable air-monitors and specialized software to monitor air toxins. For more information, contact EPA at http://www.epa.gov/epahome/other2_0525.html.

- Schools located near contamination sources should have a monitoring program for acute and long-term health affects. Findings must be confidential, yet health officials and the public must have access when concerns arise, provided identifiers are removed. These should be permanent health records, held even after the affected individuals no longer attend the school or it is closed.

EXIT

Underestimated Harm of Pesticides

Pesticides are toxic chemicals widely used in agricultural production, factories, offices, homes, restaurants, and schools to control and kill "pests." School kitchens, cafeterias, athletic fields, playgrounds, classrooms, and offices are regularly treated with a variety of pesticides. An increasing body of scientific data on the potential harmful effects of pesticide exposure on humans and our environment raises concern about the broad use of this family of toxins, which includes herbicides, insecticides, rodent poisons, miticides, and fungicides (GBPSR, 2000; Landrigan, 1999; NRC, 1993).

Pesticides contain not only active but also "inert" ingredients. The latter make either application easier or a pest more vulnerable, and often constitute more than 80% of a pesticide formulation. Common inert chemicals are toluene and xylene—toxins that affect people as well as "pests." Inerts can be equally or more toxic than active ingredients. A wide range of chemicals can be added to a pesticide formulation as inert components, some of which are "active inerts" (NCAP, 1997). Other substances that can be added as inerts include other pesticides, toxic chemicals, hazardous waste, solvents, propellants, wetting agents, and petrochemicals (NCAP, 1998). The mixed chemicals create a toxic brew that could cause or promote adverse health impacts we cannot yet determine or even anticipate.

EPA registers both active and inert ingredients (USEPA, 1987). Unlike active ingredients, which must be listed on the product label, inerts are generally considered trade secrets, and are not required to be listed. For the majority of inert ingredients, EPA does not require testing for acute toxicity. Consequently, we have incomplete awareness of what many pesticide products contain or the adverse effects of exposure to inert ingredients alone or in combination with active ingredients.

Alarmingly, many schools routinely apply pesticides without any evidence of infestation such as "ant trail sighting." After an application, chemical residues may persist for an extended period, especially within buildings, where sunlight and soil bacteria are less present to assist in chemical decomposition. Many pesticides are in fact designed to remain active over time. As a result, residuals may be detected for weeks or months following pesticide application. When a school is sprayed monthly, therefore, serious pesticide residue build-up can result (see box, next page).

CAMPAIGN GOALS

Ensure parent, teacher, student, and community right-to-know through full involvement in pest management decision-making, notification of pesticide use, and information about health effects associated with use.

Eliminate the use of high-hazard pesticides by implementing school Integrated Pest Management programs that focus on pest-infestation prevention, pest monitoring, and pest control through cost-effective, proven alternatives, using least-toxic pesticides as a last resort.

Accumulation of Pesticide Residues Following Application

A 1998 study found that a single spraying of chlorpyrifos (Dursban) resulted in accumulation on furniture, toys, and other absorbent surfaces for up to two weeks (Gurunathan, 1998). In a separate study, substantially higher chlorpyrifos concentrations were found in the infant breathing zone following application (Fenske, 1990). Airborne concentrations of 7 insecticides were tested 3 days following their application in separate rooms. Six left residues behind through the third day (Wright, 1981). A 1996 study found that 2,4-D can be tracked from lawns into homes, leaving residues of the herbicide in carpets (Nishioka, 1996). Researchers estimated that residues of 2,4-D can persist in household carpet dust as long as one year. EPA's Non-Occupational Pesticide Exposure Study found that tested households had at least 5 pesticides in indoor air, at levels often 10 times greater than levels measured in outdoor air (USEPA, 1990). One study detected air levels of the pesticide Diazinon 21 days after application at 20% of levels found immediately after application (Leidy, 1982). Source: Beyond Pesticides/ National Coalition Against the Misuse of Pesticides, *Beyond Pesticides/NCAMP Facts and Figures: Children, Pesticides and Schools* (1999).

School students and staff may inhale, swallow, or absorb through the skin and eyes applied pesticides, causing both acute and chronic health effects. Acute symptoms—which occur shortly after exposure—include eye and throat irritation, skin rashes, nausea, vomiting, diarrhea, headaches, flu-like symptoms, upper respiratory distress, and, in the extreme, death (USEPA, 1999). Chronic symptoms—those emerging much longer after exposure and persisting—may include cancer, reproductive impairment, and neurological damage (USEPA, 1999). However, because chronic effects are not apparent until years later, linking an adverse health effect, like cancer, to a specific exposure is usually impossible, especially if exposure occurred during elementary education.

Many pesticides kill insects because they are a neurotoxin, meaning they affect the brain and nervous systems. The drawings to the left graphically depict how pesticides can affect developing children's brains. University of Arizona's Dr. Elizabeth Guillette (1998) studied children from an agricultural community that applied pesticides, asking them to draw a picture of a person. She then compared their drawings with those of children the same age living in a similar community and of the same ethnic and cultural heritage, but not exposed to heavy pesticide use.

The diminished drawing ability, coordination, and creativity evident in the pesticide-exposed children compared to the others was dramatic. Exposed children also showed significantly reduced stamina and coordination when asked to catch a ball, stand on one foot as long as possible, and jump on one foot. Short-term memory impairment left the children unable to recall what the doctor promised for them after testing—a red balloon.

For schools to use pesticides around children when we know that exposure will result in adverse neurological effects is irresponsible, especially when very affordable alternatives to managing pests exist that do not pose serious harm to children. The US General Accounting Office (GAO) researched pesticide use in the nation's schools and found information on short-term pesticide exposure incidents extremely limited, and information on long-term exposure virtually non-existent (USGAO, 1999). Data provided to GAO by USEPA showed about 2,300 cases of pesticide exposure involving individuals at schools reported to poison control centers between 1993 and 1996.

Drawings of a Person by Yaqui Children (by age and gender)

Foothills (pesticide-free)

54 mos. girl | 55 mos. girl | 60 mos. girl | 71 mos. boy

Valley (pesticide-exposed)

53 mos. girl | 54 mos. girl | 71 mos. girl | 71 mos. boy

The actual incidence of adverse health effects attributable to pesticide exposure is largely underrepresented. Symptoms of pesticide illness frequently mimic those associated with flu or other common childhood ailments, not alerting parents or school personnel that something is wrong. Doctors and school nurses are not adequately trained to identify pesticide illnesses and often incorrectly diagnose pesticide poisonings. Even were they trained, without regular open public notification of pesticide use, we cannot make a credible estimate or even guess whether and which reactions are related to pesticides.

Case Studies of Pesticide Poisoning in Schools

The following are a just a few of thousands of reports of injuries annually occurring to children and staff from pesticide use in and around schools. These and many other examples are preventable and inexcusable. For more cases of pesticide poisoning incidents, obtain Northwest Coalition for Alternatives to Pesticides report *Unthinkable Risk: How Children Are Exposed and Harmed When Pesticides Are Used in School*, which profiles nearly 100 incidents nationwide (NCAP, 2000).

Yakima, WA—Near Death from What Looked Like Sand under School's Trees

A first grader came home from school feeling unwell. His vision was blurred and he began

drooling, uncontrollably vomiting, and unable to walk. Luckily his doctor recognized his symptoms as classic signs of organophosphate poisoning. He was rushed to the hospital fighting for life and is now overly sensitive to tiny pesticide amounts. He had tasted what looked like sand under a tree on school grounds—disulfoton, one of the most acutely toxic EPA registered pesticides, applied nine days earlier to control maple tree aphids (BP/NCAMP, 1996).

Portland, OR—Pesticide Use Causes Serious Harm to Students, Teachers, and Staff

Portland's Powellhurst School was treated with the pesticides chlorpyrifos and dichlorvos for ant control in May 1993. One day later, at least 65 persons, including infants, children, teachers, and school staff, reported nausea, vomiting, diarrhea, massive headache, rashes, dizziness, itching eyes, sore throats, and other symptoms upon return to school. The school was closed, cleaned, re-opened, and then closed early for the year when students and staff reported continuing health problems. Despite the severity of symptoms reported, state investigators found only a "minor" pesticide application violation (NCAP, 1994).

Charleston, WV—Banned Pesticide Found in School

In 1989, after four years of complaints by students and teachers about persistent fatigue, headache, respiratory problems, nausea, and limb numbness, Andrew Jackson Junior High School was closed (BP/NCAMP, 1996). Safety inspectors found contamination with chlordane—a chemical used to kill termites and known carcinogen EPA banned in 1988 due to its extreme toxicity.

Although the school had been tested three times since 1986 by the State Health Department, which found no problem, investigation by the National Institutes of Occupational Safety and Health (NIOSH) found air chlordane levels 11 times higher than the federal evacuation limit. The school had been treated by an exterminator and untrained janitor at the direction of school officials. NIOSH recommended decontamination and replacement of the school's ventilation system.

Tierra Amarillo, NM

A young boy must stay home from his neighborhood school because following its pesticide use he suffered asthma attacks, flu-like symptoms, headache, stomachache, dizziness, and appetite loss. When his parents removed him from school his health improved, but they are having difficulty home schooling because both need to work full time (BP/NCAMP, 1999a).

Lake in the Hills, IL

A mother is seeking an agreement on pesticide use with her son's school district because his neurological problems worsen when his school applies pesticides (BP/NCAMP, 1999a).

Danielson, CT

A student and family requested that his high school stop using harmful pesticides on the football field and surrounding grounds. Applications had caused him to fall ill, resulting in a total of eight weeks' absenteeism. He was placed on a Section 504 Plan, which provided the option to stay home when he felt ill from chemicals, with tutoring provided (BP/NCAMP, 1999a).

However, the student and family complained that the tutoring was inadequate and failed to provide other school educational opportunities and social events. They filed a complaint under Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act (ADA) of 1990. Section 504 prohibits discrimination on the basis of

disability by US Department of Education federal fund recipients. ADA prohibits discrimination on the basis of disability by public entities. The US Department of Education, Region I, stated, "ADA has essentially extended the anti-discrimination prohibitions embodied under Section 504 to all state and local governmental entities, including public school systems." In its letter to resolve the complaint, the school district attached an addendum to the student's Section 504 Plan stating that it would use alternatives to toxic pesticides that cause the student to become ill.

Key Largo, FL

Among several teachers exposed to pesticides while at work, five are now diagnosed with multiple chemical sensitivity. The teachers believe inadequate ventilation in rooms where the pesticide treatment occurred caused exposure through their skin, inhalation, and ingestion from residue on utensils (BP/NCAMP, 1999a).

College Park, MD

A teacher reports her whole life was altered when she was exposed to pesticides applied right outside the window of the room in which she was teaching. She now experiences difficulty standing, tightness of chest, lung burning, and reduced lung capacity. Several others, including her students, also complained of health problems (BP/NCAMP, 1999a).

Fort Scott, KS

Fumes from several pesticides a janitor routinely sprayed to control cockroaches overcame a teacher as she opened her office door. She reports that the school was sprayed again a week later and that the pesticide odor was very strong in all parts of the school. She maintains she was chemically sensitized from such pesticide poisoning.

Kansas Department of Agriculture investigation revealed many "inappropriate actions" but nothing illegal. Yet the teacher's medical tests show pesticide poisoning. She has tried repeatedly to resume work, but always suffers severe reactions. She is concerned for the school children because when she was stricken, many students also complained of headache, chest pain, rashes, and allergy symptoms, and some asthmatic students had to bring their breathing machines to school. She believes they have no true idea of why they feel unwell (BP/NCAMP, 1999a).

Public Notification

Most parents do not know whether, when, or how often their child's school applies pesticides and whether their child is exposed. Few regulations require such notification. Even when they do, notification documents or methods are often not "user friendly" or requirements go unimplemented. For example, school parents may receive a one-to-two page list of chemicals with no other information but a letter stating that some may be used during the spring to control pests or maintain playing fields. Some school districts provide parents with no information unless they register at the local school to be notified. Often, even when parents request information, school districts are unable or unwilling to produce basic information about pesticide use. Even school personnel are often unaware pesticides are applied.

Why is notification important? The following chart of 48 pesticides commonly used in schools clearly shows their extreme threat to human health. Most parents would want to know if they were being used around their small child.

Health Effects of 48 Pesticides Commonly Used in Schools

A Beyond Pesticides/NCAMP Fact Sheet

Pesticide	Cancer	Reproductive Effects	Neurotoxicity	Kidney / Liver Damage	Sensitizer / Iritant	Birth Defects
Insecticide						
Acephate	C	X	X		X	
Allethrin			X	X	X	
Avermectin		X	X		X	X
Bendiocarb			X		X	
Bromacil	C			X	X	
Chlorpyrifos		X	X		X	X
Cyfluthrin	C	X	X	X	X	
Cypermethrin	C		X	X	X	
Diazinon		X	X	X	X	
Dichlorvos	C, 2B		X	X	X	
Fenoxycarb	B2			X	X	
Fenvalerate			X		X	
Hydramethylnon	C	X		X	X	X
Isophenfos			X		X	
Lamda Cyhalothrin	D		X		X	
Phenothrin						
Piperonyl Butoxide	C	X	X	X	X	
Prometon	D					
Propetamphos			X			
Propoxur	B2	X	X	X		X
Pyrethrin		X	X	X	X	
Tetramethrin	C					
Trichlorfon		X	X	X	X	X
Herbicide						
Atrazine	C, 2B		X	X	X	X
Bensulide			X	X	X	
2,4-D	X	X	X	X	X	X
DSMA			X		X	
Dacthal	C			X	X	
Dicamba	D	X	X	X	X	
Diquat Dibromide		X	X	X	X	X
Endothall		X		X	X	
Glyphosate		X		X	X	
Isoxaben	C			X		X
MCPA		X	X		X	X
MCPP		X	X	X	X	X
MSMA			X		X	
Pendimethalin	C	X		X	X	
Pronamide	B	X		X	X	
Siduron					X	
Triclopyr	D	X		X	X	
Trifluralin	C	X		X	X	
Fungicide						
Benomyl	C	X	X	X	X	X
Chlorothalonil	X	X	X	X	X	
Maneb	B2	X	X	X	X	X
PCNB	C			X	X	X
Sulfur					X	
Triadimefon	C	X	X	X		X
Ziram		X	X		X	X
TOTAL	**22 probable/ possible**	**26**	**31**	**31**	**41**	**16**

B2 = EPA weight-of-evidence category, "probable human carcinogen, sufficient evidence in animals and inadequate or no evidence in humans."
C = EPA weight-of-evidence category, "possible human carcinogen" rating.
D = EPA weight-of-evidence category, "not classifiable as to human carcinogenicity," usually due to inadequate data.
2B = International Agency for Research on Cancer, World Health Organization (IARC) category, the agent (mixture) is possibly carcinogenic to humans.
X = Adverse effect demonstrated.

Source: Beyond Pesticides/National Coalition Against the Misuse of Pesticides (2000).

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Full Disclosure and Universal Notification— Parents have the right to know

Every parent should be notified when toxic chemicals are used in or around their child's school, as they are about other events. Schools inform parents when the school suffers a power outage and children receive a cold instead of hot lunch, or when an outbreak of head lice or Lyme disease occurs. Awareness that harmful, toxic chemicals will be applied to the playground, football field, or perimeter of classroom floors is equally vital. Prior written notification of each school application of which particular pesticides is essential to insure that parents, children, and school personnel are forewarned and able to take appropriate safety measures. The *Child Proofing Our Communities: Poisoned School Campaign* supports Universal Notification.

Limited notification is costly, time consuming, and less effective

Limited notification registries are less effective in notifying people than universal notification programs. Individuals must go to the school and request to have their names placed on a registry or list. Some registries are only open to persons who provide a doctor's letter. Limited notification programs mean only persons already aware of pesticide dangers and use in their school are informed of scheduled applications (Owens, 2000).

Worst Kept Secrets: Toxic Inert Ingredients in Pesticides (Holly Knight, Northwest Coalition for Alternatives to Pesticides) shows that of more than 2,500 registered inert ingredients, 21 are known or suspected carcinogens and 485 are classified as hazardous chemicals under environmental laws such as CERCLA, Clean Water Act, and Clean Air Act (NCAP, 1998).

Registries also tend to be more costly and time consuming for schools than universal notification. Large school districts may need an extra staff person to keep the registry current and coordinate notification. No separate database or maintenance is required for universal notification. In sum, notification programs that inform all parents, guardians, and school personnel prior to applications is less cumbersome and costly to parents and school administration.

SCHOOL INTEGRATED PEST MANAGEMENT

Integrated Pest Management (IPM) is a viable alternative to routine pesticide use. IPM relies on "pest proofing" to prevent pest access and on monitoring to determine whether problems exist and to what degree. Routine housekeeping and maintenance strategies eliminate pest attractions and habitats. IPM never applies pesticides as a matter of course, as do many schools.

Often pests can be physically trapped or blocked from entry, or their habitats can be removed. Vacuums, caulking guns, and soapy water can exclude or manage many common school pests. Should monitoring indicate that "pest-proofing" strategies are insufficient, IPM deploys least-toxic treatments. These include baits, biological controls, traps, HEPA vacuums, soap sprays, and other low risk techniques. The manufacture of least-toxic control products is a major growth industry and new materials and devices are increasingly available.

When seeking alternatives to conventional pesticides, exchange of one chemical for another is not appropriate. Instead of eradicating the cause of problems, many pesticide-based approaches only treat symptoms, leaving in place structural or maintenance problems that create an environment conducive to pests. Furthermore, pesticides are often ineffective over the long term because pests develop resistance. To identify viable alternatives to toxic pesticides requires first properly identifying the pest problem. Schools should monitor pest populations, make structural repairs, use proper sanitation inside and outside, and modify pest habitats, in order that solutions will be long-term, not ad hoc, temporary, or ineffective. In other words, simple changes in the school environment can significantly reduce pest populations and eliminate, or at least reduce, pesticide deployment. Learning to solve pest problems without chemical dependency can also teach students valuable lessons about health, their environment, and decision-making.

Some schools have already moved to IPM and are realizing the benefits of reduced risks, reduced costs and positive publicity. EPA relates that, "Schools across the nation that have adopted such programs report successful, cost-effective conversion to IPM. IPM can reduce the use of chemicals and provide economical and effective pest suppression" (USEPA, 1993).

Successful Integrated Pest Management (IPM) Programs

The Montgomery County (MD) public school IPM program is one of the best known examples among schools. Pesticide use reduction by 90% and use of least-toxic pesticides when pesticides are required have made schools safer. Bill Forbes administers a pest management program for 200 sites. He cut pesticide use from 5,000 applications in 1985 to none four years later, saving the school district $1,800 per school and $30,000 at the food service warehouse. District employees who implement his system receive 60–100 hours of training annually. Program success is largely due to preventive measures and on-going monitoring to determine whether, when, and where pest populations warrant action (BP/NCAMP, 1999b).

Hundreds of Michigan schools use the company, Get Set, for least-toxic IPM. Get Set conducts an initial inspection to locate problem areas, which are addressed immediately. It then meets with school personnel to train them in IPM and provide a manual. On-going service consists of periodic inspections and consultations. Parents are notified when any pesticides, including least-toxic, are used in schools (BP/NCAMP, 1999b).

Even the General Services Administration (GSA)—the government agency that manages federal buildings—has established an IPM policy that defines IPM as "a process for achieving long-term, environmentally-sound pest suppression through the use of a wide variety of technological and management practices." The policy encourages avoiding pesticide use, requiring that "The Contractor shall use non-pesticide methods of control wherever possible." It says that portable vacuums rather than pesticide sprays must be used for initial clean-outs and that trapping devices rather than pesticide sprays must be used for indoor fly control whenever appropriate (GSA, 1989). Albert Greene, National IPM Coordinator for GSA, has applied IPM in the 30 million square feet of indoor federal space that comes under GSA's National Capital Region jurisdiction. Greene reports that since program initiation in 1988, pest problems have generally declined and occupant satisfaction has increased, all the while contractors use less than 2% of the pesticides that were routinely used. He believes "GSA's program is a conclusive demonstration that structural IPM works: that it can be pragmatic, economical, and effective on a massive scale" (BP/NCAMP, 1999b).

There is no excuse for exposing students and staff to toxic pesticides when many cost-effective alternatives exist. IPM programs in schools have been emphasized for the past ten years. In a growing nationwide trend, school districts and states are adopting more protective pesticide policies. Over 150 school districts have policies or programs that utilize one or more main provisions of the campaign's proposed Gold Standard School IPM Policy, described below (BP/NCAMP, 2000a). They have agreed to some level of prior notification and to reducing and/or eliminating toxic pesticide use. Although some local policies and state laws have their limitations, all serve to improve school children's protection from pesticides. Key to success is policy implementation and holding schools and state agencies accountable.

The above examples are just a sample of effective IPM programs across the country. For additional schools with successful programs without toxic pesticides, contact Beyond Pesticides/NCAMP, listed in the Resources section.

Federal and State Regulations

No federal policy guides school pesticide use. Some local school districts have developed IPM policies and several states offer policy and protection. However, protection is uneven and inadequate across the country, placing children and personnel in harm's way in most of our nation's schools.

Thirty-one states have adopted pesticide acts and regulations that address protection of children by specifically focusing on pesticide use in, around, or near schools. Of these, only 20 address indoor pesticide use (BP/NCAMP, 2000a).

The following table provides an overview of what states require. A more in-depth state-by-state review of pesticide laws affecting schools, *Schooling of State Pesticide Laws*, was published by Beyond Pesticides/The National Coalition Against the Misuse of Pesticides and can be obtained by contacting them directly (see the Resources section).

State Laws and Requirements on the Use of Pesticides in Schools

(as of August 2000)

State	Buffer Zones	Posting Signs: Indoor	Posting Signs: Outdoor	Prior Notification	IPM Defined	Prohibit Use
Alabama	Yes					
Arizona	Yes	Yes	Yes	Universal		
California			Yes	Registry	Recommends	
Colorado			Yes			
Connecticut			Yes	Registry	Recommends	
Florida			Yes		Recommends	
Georgia		Yes	Yes			
Hawaii					Yes	
Illinois			Yes	Universal or Registry	Requires	
Indiana			Yes			
Iowa			Yes			
Kentucky			Yes			
Louisiana	Yes			Registry	Requires	Yes
Maine		Yes	Yes		Recommends	
Maryland		Yes	Yes	Universal or Registry	Requires	
Massachusetts		Yes	Yes	Universal or Registry	Requires	
Michigan		Yes	Yes	Registry	Requires	Yes
Minnesota				Registry	Yes	
Montana		Yes			Recommends	
New Hampshire	Yes		Yes			Yes
New Jersey	Yes	Yes	Yes	Registry		Yes
New Mexico				Universal or Registry		
New York			Yes	Registry	Recommends	
North Carolina	Yes					
Ohio			Yes			
Oregon					Yes	
Pennsylvania				Registry	Yes	Yes
Rhode Island			Yes			
Texas		Yes		Registry	Requires	Yes
Vermont			Yes		Yes	
Washington			Yes			
West Virginia		Yes		Universal or Registry	Requires	Yes
Wisconsin			Yes			

Source: Beyond Pesticides/National Coalition Against the Misuse of Pesticides (2000a).

In rural and agricultural communities where pesticides are applied to fields in a manner that may create drift onto school property, schools often need buffer zones. As the table on the next page indicates, only a few states have restricted spray buffer zones.

Beyond Pesticides/ NCAMP has studied this issue for years and recommends that buffer zones extent to a minimum of a two-mile radius around school property to protect against drift from ground applications. Aerial applications require a larger buffer zone, at least three miles encircling the school. Buffer zones should be in effect at all times of the day. As the table below indicates, especially spray restrictions are important during commuting hours and while students and employees are on school grounds. These buffer zones apply only to sprayed pesticides.

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Restrictions on Pesticide Use in Schools by State

Connecticut	Pesticides prohibited during school hours.
Louisiana	Entry restricted for 8 hours after application of restricted use pesticides.
Massachusetts	Pesticide use prohibited when children present. Outdoors: pesticides that are known, likely, or probable carcinogens, contain a "List 1" inert ingredient, or are applied for aesthetic reason alone are prohibited. Indoors: certain pesticides are prohibited.
Michigan	Indoors: entry restricted for 4 hours after application of spray or aerosol insecticides. Outdoors: spray insecticides prohibited within 100 feet of occupied areas.
New Hampshire	Pesticides cannot be applied "where exposure may have an adverse effect on human health."
New Jersey	Pesticide application prohibited during normal school hours. Prohibited at other times if treated area will be occupied before drying is complete.
New Mexico	Use of certain pesticides prohibited when area is occupied or will be within next 6 hours. Licensed childcare center pesticide use prohibited when children on premises.
Pennsylvania	No application in "common access areas" during normal school hours or during extracurricular activities; entry restricted for 7 hours after application.
Texas	Pesticides are grouped into Green, Yellow, and Red Lists. No indoor application of certain Green pesticides when students in area. For other Green, Yellow, and Red pesticides entry restricted for 12 hours after application. Outdoors: Green—students must be 10 feet away; Yellow—10 feet away and 12 hours restricted entry; Red—50 feet away and 12 hours restricted entry.
West Virginia	Pesticides grouped into levels. Students and employees restricted from entering sprayed areas for 4 hours after application of level 3 pesticides and 8 hours after level 4.

Chart adapted from Beyond Pesticides/NCAMP (2000a).

State Buffer Zones to Protect Against Drift from Pesticide Spraying

Alabama	Aerial application: No Spraying within 400 feet.
Arizona	Ground and aerial application: No spraying certain pesticides within 1/4 mile.
Louisiana	Aerial application: No spraying within 1,000 feet during school hours.
New Hampshire	Aerial application: No spraying during commuting hours, outdoor activities, or in sensitive areas.
New Jersey	Ground and aerial gypsy moth applications: No spraying during commuting hours, within 2 miles of grade schools or 2-1/2 miles of high schools. Aerial application: no spraying within 300 feet.
North Carolina	Aerial application: No spraying within 300 feet.

Source: Adapted from Beyond Pesticides/NCAMP (2000a).

THE GOLD STANDARD SCHOOL INTEGRATED PEST MANAGEMENT POLICY

Child Proofing Our Communities: Poisoned School Campaign, representing groups working nationwide to eliminate school pesticide use at the national, state, and local levels, have developed a "Gold Standard" School Integrated Pest Management policy after research showed that IPM is interpreted and applied in many ways.

Some of the best IPM policies currently used, though originally thought protective, have not eliminated children's exposure to the most harmful pest control products—products that can cause cancer, reproductive damage, nervous system damage, disruption of the hormonal (endocrine system), or damage to the immune system, or are acutely toxic. A large percentage of schools, even many that have passed IPM policies, continue to use these "high hazard" pesticides.

For instance, for the report, *"P" is for Poison*, California Public Interest Research Group (CALPIRG) surveyed 15 of the largest California school districts and found that of the 13 that responded, all used one or more high hazard pesticides (CALPIRG, 2000). Even districts reporting adherence to IPM policies have not reduced reliance on toxic pesticides.

IPM means various things depending on who defines it. Even federal, state, and local regulations define IPM variously. No laws delineate the use of the term or define it. Some states and localities define it as does our proposed Gold Standard School IPM Policy—monitoring, prevention, non-chemical techniques first, least-toxic pesticides as a last resort. Others embrace all available methods of pest management, giving pesticides equal emphasis.

In fact, rarely can one find a pest control company or operator who describes their program as something other than IPM, despite extensive use of high hazard pesticides. Most definitions give equal weight to high hazard pesticides and use of alternative methods. They do not comprise actions essential to properly control pest problems—pest population monitoring and infestation prevention. Effective IPM programs focus on reducing hazards associated with pesticides and eliminating school use of high hazard pesticides. Authentic IPM gives priority to non-chemical methods of control and turns to least-toxic methods as a last resort.

The *Child Proofing Our Communities: Poisoned School Campaign* Gold Standard School IPM Policy aims to clear up this confusion with a model definition. It reflects the work of many groups that have succeeded in protecting children from toxic pesticide exposure in their local communities. The outcome of an enormous amount of research, it is crafted to protect the health of students and school personnel and effectively manage school pest problems.

Below are the Gold Standard School IPM Policy's guiding principles, which if adopted and implemented, will provide notification, participation, and a healthy school environment.

Recommendations and Core Principles of a Gold Standard School IPM Policy

- Participation in a school Integrated Pest Management (IPM) committee or other formal group should be available to parents, age-appropriate students, teachers, and community members.

- Preventive and alternative pest controls should be used first. These include sanitation measures that eliminate pest habitats, structural remedies that block

pest access, and maintenance measures that prevent pest infestations.

- Only use least-toxic pesticides if pests present a documented health or safety hazard and never for strictly aesthetic purposes.

- If pesticides are used, they should be the least-toxic available and their use strictly limited. Under no circumstances should pesticides be used that can cause cancer, reproductive damage, nervous system damage, disruption of the hormonal (endocrine) system, damage to the immune system, or are acutely toxic.

- If least-toxic pesticides are to be applied, parents, students, and teachers should be notified in advance through written notification and posting. Notification should include what pesticides will be used, health affects associated with exposure, contact information, documentation as to why use is necessary, and the right to request alternatives.

It is in everyone's best interest to reduce chemical exposure in the school environment. Parents, teachers, administrators, and others involved in teaching and developing children to be productive, healthy, educated adults are children's most natural advocates. As we learn more and more about the special vulnerability and susceptibility of children to health risks from low-level chemical exposure, these advocates must act to eliminate those risks.

Child Proofing Our Communities: Poisoned School Campaign strives to educate parents and school decision-makers on the gravity of these problems. Participants are organizing parents, teachers, health professionals, school officials, environmental and public health activists, and others to take action at all levels to ensure children's protection.

Gold Standard School IPM Policy

Integrated Pest Management (IPM) is a pest management program that practices site inspection and pest population monitoring, evaluates the need for pest control, and uses one or more physical, biological, and cultural controls. Pest problem prevention through non-chemical methods is the primary means of pest control. Least-toxic pesticide products and techniques are used only as a last resort.

This explicitly means that IPM is a method of building and grounds maintenance that seals pests out of buildings and discourages food, water, and shelter practices that attract pests. It promotes natural landscaping. Sticky traps are used to ascertain pest types and numbers. If pests cannot be sealed out or controlled through proper sanitation and maintenance, a pest control method from an approved list of least-toxic pest control options (see page 51) may be chosen (HSN, 1999a). These IPM principles create savings due to permanent building improvement and ensure the least possible hazard to people, property, and the environment.

An IPM committee and coordinator must be appointed by the school district in adopting and implementing IPM.

The IPM committee approves the School IPM Policy, develops guidelines, and oversees implementation. It should be trained in school IPM principles and comprise members from various interested constituencies—parents, age-appropriate students, teachers, school administrators; administrative, facility, food service, and landscape school staff; pest control company(ies) contracted by the school district to manage pests; and community environmental and public health organizations.

Committee responsibilities include:

- Developing an implementation plan with guidelines for inspection, monitoring, record keeping, reporting, certification, school IPM training, and evaluation of the School IPM Program.
- Making recommendations for long-term site planning and pest prevention.
- Setting and revising pest injury and action levels. An action level is the level of vegetation or pest population at a specific site at which action must be taken to prevent reaching injury level. Injury level is the point at which a pest problem creates unacceptable economic or medical damage.
- Developing guidelines for notice, posting, and appeal.
- Developing staff and student education and awareness programs.
- Developing a resource list of parents and community members with special skills who could contribute to the School IPM Program and volunteer to assist with implementation.
- Developing guidelines for emergency decision-making and limited use exemptions.
- Reviewing progress in pest control through documenting the use of integrated methods (physical, biological, and cultural controls).
- Reviewing parental, staff, or neighbor requests for reconsideration of planned pesticide use and recommending action to the school district;
- Reviewing and recommending authorization or denial of pesticide use proposals by pest control contractors.
- Developing pest prevention and treatment guidelines and annually reviewing them to insure that they are based on the best available prevention techniques.

Gold Standard School IPM Policy Resolution

Whereas the object of the school district is to ensure student and staff health and safety,

Whereas chemical pesticide use creates potentially serious risks to human health when applied in the school environment,

Whereas children are more vulnerable to pesticide health hazards than adults,

Whereas pesticide use cannot provide safe, long-lasting, or effective pest control,

Whereas pest prevention is more cost-effective than pesticide use in the long-term,

Now therefore let it be resolved that it is school district policy to implement a comprehensive Integrated Pest Management (IPM) program for all school buildings and grounds. Although pest management may vary from site to site, it must be consistent with the following pest management objectives.

- Provide the healthiest learning environment, playgrounds, and playing fields possible
- Eliminate high-hazard pesticide use
- Prevent economic and health damage caused by pests
- Maintain structural integrity
- Never base pest management decisions on aesthetic criteria alone

The IPM coordinator should be a school district employee appointed by the district, trained in school IPM principles, and responsible for:

- Regularly monitoring pest activity and maintaining records of all pest control services through use of a Pest Activity Log and IPM Log accessible to all building occupants and contractors.
- Inspecting the inside and outside of school property regularly to identify areas or practices that contribute to pest infestation.
- Developing a plan that lists structural deficiencies and provides corrective solutions.
- Initiating requests for minor maintenance.
- Initiating sanitation methods to insure that food is properly stored in sealed containers and that the areas where food is prepared or consumed and around dumpsters is thoroughly cleaned at the end of each day.
- Scheduling and facilitating IPM committee meetings.
- Coordinating school IPM training for the school district staff, students, parents, and public.
- Reviewing pesticides for toxicity and health effects.
- Analyzing life cycles and patterns of pest species.
- Insuring accurate pest identification.
- Working with school staff to gather information on pesticide or pest-related health and safety issues.
- Overseeing IPM contractors or staff engaged in pest management and monitoring pest problems.
- Working with schools to implement posting, notification, and record keeping.
- Insuring that pest information and sightings are handled properly.
- Presenting an annual report to the school district that evaluates School IPM Program progress.
- Coordinating volunteers and staff in various school IPM projects.
- Coordinating a school IPM awareness and education program by encouraging schools to identify and execute ideas for student or community involvement in the School IPM Program and to institute environmental health programs within the curriculum.

Implementation guidelines must direct employees or contractors charged with implementing IPM not to utilize chemical pesticides. They must:

- first attempt non-chemical methods of pest prevention and control such as sanitation, structural repair and maintenance, and mechanical and biological controls (see page 53, Applying IPM Strategies, for options) approved by the IPM coordinator and committee; and
- as a last resort, select from the Least-Toxic pest control products (see "Approved List of Least-Toxic Pest Control Products" below) approved by the IPM committee and coordinator.

Approved Least-Toxic Pest Control Products:

- Boric acid and disodium octobrate tetrahydrate
- Silica gels
- Diatomaceous earth
- Nonvolatile insect and rodent baits in tamper resistant containers or for crack and crevice treatment only
- Microbe-based insecticides
- Botanical insecticides (not including synthetic pyrethroids) without toxic synergists
- Biological, living control agents, such as parasites and predators
- Soap based products
- Natural products on FIFRA's 25(b) list (40 CFR part 152.25[g][I] – USEPA-1999a)
- Cold treatment/use of liquid nitrogen, electronic products, heat, and lights
- Products containing no inert ingredients categorized as "List 1: Inerts of Toxicological Concern" or any equivalent EPA classification (USEPA, 1987).

The term "least-toxic" does not include high hazard pesticides—those the EPA deems to be acutely or moderately toxic (Kamrin, 1997); to be a known, probable, or possible carcinogen (Goldman, 1998a); mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disruptor, or immune system toxin (Landrigan, 1998); or to require using a broadcast spray, dust, tenting, fogging, or baseboard spray application. Furthermore, school personnel may not bring or apply pesticides on school property.

Limited use exemptions for chemical pesticides may be provided, but under no circumstances may school personnel or contractors apply chemical pesticides for purely aesthetic purposes. To obtain an exemption, the applicator must first:

- demonstrate having exhausted all non-chemical methods outlined in the program and that the pest poses significant threat to student or staff health, and
- submit a written request to the IPM committee that a particular pesticide not on the Approved List of Least-Toxic Pest Control Products be approved for a specific and limited purpose. The request must be reviewed by the committee and signed by the coordinator. The IPM committee may grant a limited use exemption if the applicator has:
  - identified compelling need for the pesticide;
  - made a good-faith effort to find alternatives to the particular pesticide;
  - demonstrated that effective, economical alternatives to the particular pesticide do not exist for the particular use; and
  - developed a reasonable plan for investigating alternatives to the banned pesticide during the exemption period.

Guidelines for Limited Use Exemptions

The IPM committee should be *prohibited* from granting limited use exemption for pesticides USEPA classifies as acute toxicity category I and II pesticides (Kamrin, 1997); probable, possible, or known carcinogens (EPA carcinogenicity categories A, B, C) (Goldman, 1998a); or known neurodevelopmental, immune, or reproductive toxins (Landrigan, 1998).

The committee should allow limited use of an approved least-toxic pesticide for a short and defined exemption period, not to exceed one year.

Applicators should only use the smallest amount of least-toxic product needed for pest control.

Applicators should only use low- or non-volatile materials approved in advance by the IPM committee. Routine spraying and fogging is prohibited.

Limited use pesticides should only be applied in protected locations—such as cracks and small voids—not areas contacted by or accessible to students and school staff.

Limited use pesticides should only be applied when building occupants are not present and not expected for 24 hours following application.

The Notification Policy

Parents and staff must be provided a minimum of 72-hour advance written notice for both indoor and outdoor pesticide applications on school grounds and in school buildings. In addition, notification signs must be posted at the entrance of or adjacent to the area to be treated and in a central school location 72 hours before and 72 hours after application. Notification must include the pesticide's common and trade names; description of potential adverse health effects based on the chemical's material safety data sheet and pesticide label; description of the location and reasons for application; and whom to contact for more information and reconsideration of pesticide use.

A disclosure notice similar to the chart on page 40,"Health Effects of 48 Pesticides Commonly Used in Schools," should accompany the notification form. Records of all pesticide applications should be kept on site for at least 5 years (termite applications for the life of the property, as chemicals used to treat termites by soil injection are extremely persistent and toxic).

All pest control contracts should include the following provisions:

- Each service visit must be conducted by a certified operator more than 21 years old and include a thorough inspection of all contract areas to detect the presence of and conditions conducive to pest infestations.
- The operator must review the Pest Sighting Log prior to each service.
- The operator must agree to all School IPM Policy terms and perform all pest control duties as the policy outlines.
- A written service report must be prepared each visit and comprise school name; visit date; arrival and departure times; technician's name; brief description of service provided; name, location, amounts, and method of application of pesticides used; actual pest sightings (report in both service report and Pest Sighting Log); persons contacted; and conditions contributing to current or potential pest problems.

Buffer Zones are often needed for schools in rural and agricultural communities where pesticides are applied to agricultural fields in a manner that cause drifting onto school property. The IPM committee and coordinator must determine whether a buffer zone is appropriate for their school district (or certain schools within the district). If a zone is indicated, the following policy should be put in place:

- In order to adequately protect against drift, buffer zones should at a minimum form a 2-mile radius around school

property. When aerial pesticide applications are involved, zones should extend at least 3 miles around the school. Buffer zones should be in effect at all times of the day. Spray restrictions are especially important during commuting hours and while students and employees are on school grounds.

Applying IPM Strategies

Pest prevention measures include sanitation and structural repair, and physical and mechanical controls such as screens, traps, weeders, and air doors. Specific IPM strategies for specific school sites are provided below and taken directly from *Pest Control in the School Environment: Adopting Integrated Pest Management*, EPA Office of Pesticide Programs (USEPA, 1993). (Note: Each school will experience slightly different pest combinations.)

IPM Strategies for Indoor Sites

Typical Pests: Mice, rats, cockroaches, ants, flies, wasps, hornets, yellow jackets, spiders, microorganisms, termites, carpenter ants, and other wood-destroying insects. Although beneficial as predators, wasps, hornets, yellow jackets, and spiders can be troublesome.

Entryways (doorways, overhead doors, windows, holes in exterior walls, openings around pipes, electrical fixtures, or ducts):

- Keep doors shut when not in use.
- Place weather stripping on doors.
- Caulk and seal wall openings.
- Install or repair screens.
- Install air curtains.
- Keep vegetation, shrubs, and wood mulch at least 1 foot away from structures.

Classrooms and Offices (classrooms, laboratories, administrative offices, auditoriums, gymnasiums, and hallways):

- Allow food and beverages in designated areas only.
- Keep indoor plants healthy. When small insect infestations appear, remove them manually.
- Keep areas as dry as possible by removing standing water and water-damaged or wet material.
- In science labs, store animal foods in tightly sealed containers and regularly clean cages. In all areas, remove dust and debris.
- Routinely clean lockers and desks.
- Frequently vacuum carpeted areas.
- Prevent head lice infestations by discouraging students from sharing hats, coats, and brushes and spacing coat hooks far enough apart to prevent articles touching. Avoid upholstered furniture and stuffed toys. Institute a "No Nit Policy" mandating any child with head lice be sent home until all lice, eggs (nits), and egg cases are removed. When infestation occurs, consult with the local health department and have parents contact a physician and the National Pediculosis Foundation for information on non-chemical treatment and prevention options (see Resources section).

Food Preparation and Serving Areas (dining room, main kitchen, teachers' lounge, home economics kitchen, snack area, vending machines, and food storage rooms):

- Store food and waste in containers inaccessible to pests. Containers must have tight lids and be plastic, glass, or metal. Waste should be removed at the end of each day.
- Place screens on vents, windows, and floor drains to prevent cockroaches and other pests from using them as pathways.

- Create inhospitable living conditions for pests by reducing food and water availability—remove food debris, sweep up all crumbs, fix dripping faucets and leaks, and dry-out wet areas.
- Improve cleaning practices, including promptly cleaning food preparation equipment and removing grease accumulation from vents, ovens, and stoves. Use caulk or paint to seal cracks and crevices.
- Capture rodents by mechanical or glue traps. (Note: Place traps in child inaccessible areas. Traps, including glue boards, for rodent control must be checked daily. Dispose of killed or trapped rodents within 24 hours.)

Rooms and Areas With Extensive Plumbing (bathrooms, rooms with sinks, locker rooms, dishwasher rooms, home economics classrooms, science laboratories, swimming pools, and greenhouses):

- Promptly correct leaks and other plumbing problems to deny pests water access.
- Routinely clean floor drains, strainers, and grates. Seal pipe chases.
- Keep areas dry. Avoid conditions that encourage condensation. Areas that never dry out attract mold and fungus. Increase ventilation if necessary.
- Store paper products or cardboard boxes away from moist areas and direct floor or wall contact. This also facilitates inspection.

Maintenance Areas (Boiler room, mechanical room, janitorial housekeeping areas, and pipe chases):

- After use, promptly clean mops and mop buckets; dry them, and hang mops vertically on rack above floor drain.
- Allow eating only in designated eating areas.
- Clean trash cans regularly and use plastic liners and secure lids.
- Keep areas as clean and dry as possible and remove debris.

IPM Strategies for Outdoor Sites

Typical Pests: Mice and rats. Turf pests—broad-leaf and grassy weeds, insects such as beetle grubs or sod webworms, diseases such as brown patch, and vertebrates such as moles. Ornamental plant pests—insects such as thrips, aphids, Japanese beetles, and bag worms; and plant disease.

Playgrounds, Parking Lots, Athletic Fields, Loading Docks, and Dumpsters:

- Regularly clean trash containers and gutters and remove all waste, especially food and paper debris.
- Secure trash container lids.
- Repair pavement and sidewalk cracks.
- Provide adequate drainage away from structures and on the grounds.

Turf (lawns, athletic fields, and playgrounds):

- Maintain healthy turf by selecting a mixture of turf types (certified seed, sod, or plugs) best adapted for the area. Check a university or Cooperative Extension services for turf recommendations, management practices, or other information.
- Raise turf mowing height to enhance its competition with weeds; adjust mower putting height, depending on the grass type; sharpen mower blades; and vary mowing patterns to help reduce soil compaction.
- During early morning hours water turf infrequently but sufficiently, in amounts that allow turf to dry before nightfall; let soil dry slightly between waterings.
- Provide good drainage and periodically inspect turf for evidence of pests or diseases.
- Leave grass clippings in the turf (use a mulching mower or mow often) or compost with other organic material.
- Have the soil tested to determine pH and fertilizer requirements.
- Use a dethatcher to remove thatch.

Dethatch in early fall or early spring, when lawns can recover and over-seeding operations will likely be more successful.
- Time fertilizer application appropriately, because excess can cause additional problems, including weed and disease outbreaks. Apply lime if necessary. Use aeration to place soil on top of thatch so that soil microbes can decompose thatch.
- Seed-over existing turf in fall or early spring.

Ornamental Shrubs and Trees:
- Apply fertilizer and nutrients to annuals and perennials during active growth and to shrubs and trees during dormancy or early growing season.
- If using a fertilizer, use the correct one at the suitable time, water properly, and reduce compaction.
- Prune branches to improve plants and prevent pest structural access.
- Use appropriate pest-resistant varieties (check with Cooperative Extension) and properly prune for growth and structure.
- Correctly identify the pest. When in doubt, send several specimens to Cooperative Extension. Once it is identified, seek recommendations.
- Use pheromone traps as a timesaving technique to determine the presence and activity periods of certain pest species. Pheromones are chemicals released by various organisms to communicate with others of the same species, usually to assist mating.
- Select replacement plant material from among the many disease-resistant types being developed by plant breeders nationwide.
- Check with Cooperative Extension or a university for information on plant types suited to your site.
- Remove susceptible plants if disease recurs and requires too many resources, such as time, energy, personnel, or money. Some ornamental plants, trees, and turf are so susceptible to diseases that efforts to keep them healthy may prove futile.

Ten Steps to a Gold Standard School IPM Policy

The following information can help you address any issue of particular concern in your school. It can, for instance, also guide implementing the proposed School Site Acquisition Process. Or, it can help you guide your school to adopt an IPM policy. This information was adapted with permission from *Reducing Pesticide Use in Schools: An Organizing Manual*, Pesticide Watch Education Fund (PWEF, 1998).

Step One: Exercise Your Right to Know—Survey Your School

Reducing pesticide use first requires understanding the problem. Pesticide use and pest management policies vary dramatically among school districts. Determine how your district makes pest management decisions and what types of pesticides are used and their health effects. This knowledge is a powerful tool for demanding change.

Roadblocks to obtaining pesticide information

Unfortunately, obtaining answers is not as simple as asking the right questions. Several impediments may prolong and frustrate the process. First and fundamental, many school districts hold no one person responsible for district pest management. Several calls may be required simply to determine with whom you should speak.

Second, most districts have no pest management policy, often meaning record keeping is minimal. Fairly often no one person can tell you what pesticides are used because no one

person is responsible for tracking information. Third, school districts today face many problems; pesticide use often is low on the list despite potential health impacts. Finally, many school district staff resist providing information because they fear that community members may demand change. Resistance often derives from lack of knowledge about pesticide use health impacts on children and viable alternatives.

Tips for obtaining pesticide information

Defining the problem may prove difficult and require persistence but should not deter pursuing the issue. That obtaining this information is often so challenging demonstrates a major problem with the system. School district policies and practices vary, so learning whom to approach for information becomes a battle in itself. In some cases, one phone call may suffice. Others may require months of effort. Experience from around the nation suggests this approach:

- Contact the Office of the Superintendent and ask to speak to the person responsible for school district pest management. The many possibilities include the superintendent, but often other department heads are responsible—perhaps Buildings and Grounds or Maintenance. Many schools contract pest management services to a private company. Regardless of who is responsible, making that discovery is fundamental.
- Request to meet with the person responsible for pest management. Send a copy of a survey to complete before the meeting so that they will be prepared with the information you need. The initial meeting should simply determine basic information. Lobbying for reform is appropriate only after you understand the problem and have developed more support. Appendix B provides a sample school survey.
- Enlist the aid of others. Often if the information request comes from a school board member, the PTA, active community members, or other powerful figures within the district, response is more forthcoming.

Using information

After receiving information about what is used in your school, you will likely need assistance to determine its meaning. *Child Proofing Our Communities: Poisoned School Campaign* can suggest in-area organizations to explain health impacts associated with use of particular pesticides and present alternative approaches for the problems your school faces.

Step Two: Verify Facts

If your school claims to practice IPM, verify this with the checklist below or by reviewing school records of the time/place/name of each treatment/application. If the answer is "no" to any of the questions below or records indicate routine pesticide use, your school's IPM program falls short of the Gold Standard. Use this simple checklist:

Are you granted the right to know?

- School answers all questions, permits a school tour and speaking with other school personnel, and provides access to pesticide application or other IPM records to verify information.

Are you properly notified?

- School notifies all parents and personnel at least 72 hours in advance of pesticide applications providing information on the pesticide's common and trade names; description of potential adverse health effects based on the chemical's material safety data sheet and label; description of the location and reasons for application; and whom to contact for more information and reconsideration of pesticide use.

- The health effects grid modeled on page 40—*Health Effects of 48 Pesticides Commonly Used in Schools*—accompanies notification form.
- Posting of treated areas remains a minimum of 72 hours after application.
- All pesticide application records are kept on-site for at least 5 years (termite applications for life of property).
- School personnel, including school nurse, can readily tell you where IPM and Pest Sightings Logs are kept and know they are responsible for reporting complaints and sightings in the logs.
- When asked, school immediately shows you where maintenance chemicals are stored and provides product labels and material safety data sheets for all pesticides in use.
- School board has annual report on the pest management program, including products and amounts used.
- School has designated IPM coordinator and IPM committee for pest control questions and complaints.

Are contractors following the rules?

- School readily shows you signed contract with pest control company that adheres to its approved IPM policy objectives.
- School uses only pesticide-applicators certified and over 21 years old.
- IPM coordinator monitors contractor performance and regularly reports to IPM committee.

Does the school practice true IPM?

- Custodians and cleaners carry caulk guns and screen patching (or have them readily available).
- Sticky traps are set and checked regularly to monitor pest populations.
- Windows, indoor food storage areas, and outdoor trash centers have screens.
- No pets in classrooms.
- Food is stored and eaten only in limited areas; no snacks in the classrooms.
- Food and waste are stored in containers with tight lids. Waste is removed at the end of each day.
- Lockers and desks are routinely cleaned out.
- No standing water or water-damaged or wet materials.
- Grass and shrubs are planted and trimmed to stay away from buildings. Building foundations, fence lines, and sides of drives and walks are not edged with brown grass (evidence of herbicide use).
- When chemical pesticides are to be used, school provides documentation that all other non-chemical methods outlined in the policy have been exhausted and that the pest poses a significant threat to student or staff health.

Some of the bullets above were taken from the Healthy Schools Network guidebook *Children, Learning, and Poisons Don't Mix: Kick the Pesticide Habit* (HSN, 1999a).

Is the IPM policy Least-Toxic?

- School has approved list of "Least-Toxic" pest control methods, including no high hazard pesticides—those the EPA deems acutely or moderately toxic (Kamrin, 1997); or a known, probable, or possible carcinogen (Goldman, 1998a), mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disruptor, or immune system toxin (Landrigan, 1998).
- Under no circumstances does the school allow application of pesticides USEPA classifies as acute toxicity category I and II pesticides (Kamrin, 1997); probable, possible, or known carcinogens (EPA carcinogenicity categories A, B, C) (Goldman, 1998a); or known neurodevelopmental, immune, or

reproductive toxins (Landrigan, 1998).
- If school is in rural area or near agricultural area, buffer zone of at least 2 miles encircles school for ground applications and at least 3 miles for aerial pesticide applications.

Step Three: Build Core Support and Establish Your Platform

After your research is complete, begin developing a core group of individuals to launch your campaign. Alone, you will likely be overwhelmed by the effort involved. In addition, a group is less vulnerable to accusations of being "fringe" than is an individual. Core groups usually comprise a handful of dedicated people, from which most school campaigns begin.

Several tactics can help you locate others to join your group. Talk to neighbors or other parents within the school. Contact the local PTA, PTO, other school-based parent groups, and local environmental organizations. Try to imagine what community members might be brought to or already share your concern. Reducing pesticides benefits everyone, from children, teachers, and staff at the school regularly to parents and other community members who live in the area or use school grounds and buildings for activities. If you or your child has experienced health problems you believe are associated with pesticide exposure, others are likely affected and concerned as well.

Hosting your first meeting

Having identified your core group, hold an initial meeting. Have a planned agenda, as many who may want to join the campaign are likely to be balancing careers, parenting, and other commitments. A long, disorganized meeting will likely to deter them from returning. Try to limit the meeting to no more than 90 minutes.

A sample agenda for the initial meeting might include:
- Introductions, including why people are there
- Overview of problem based on your research
- Goals discussion
- Discussion of next steps, including recruitment ideas
- Assignments for action before next meeting
- Establish time for next meeting

Establishing goals

You and the other community members you work with should determine exactly what you want the school to do. Without clearly defining the steps you want the school district to take, organizing your campaign will prove difficult and allow the school district to pass inadequate reform. You may want to call for many possible changes. *Child Proofing Our Communities: Poisoned School Campaign* established the core principles for a Gold Standard IPM Policy (see page 47). This policy could serve as your first organizing goals.

Step Four: Approach School District Staff to Support Your Goals

After determining your platform, meet with school staff responsible for pest management to determine their position on your request. The more they feel part of the policy design process, the better the chance for program success. Attend the meeting as a group that represents the community impacted, bringing teachers, parents, and students. Representatives from organizations, such as the PTA, environmental organizations, and health care, are also helpful. Present your concerns and goals clearly.

This initial meeting may follow any of several scenarios. In the best-case, staff agrees that

change is needed and an IPM committee forms to develop a school district policy and program. In fact, many school district staff take their own initiative to adopt IPM once they learn about the problem. More often, however, staff expresses concerns about alternative pest control methods. Listen carefully. Some concerns may indicate lack of understanding of what IPM is and how it can benefit the school.

Step Five: "Power map" the School Board

To achieve your goals you must convince the majority of the school board that the Gold Standard IPM Policy is appropriate. Always keep in mind that your primary targets are these individuals.

"Power map" the school board to determine how to win. This tool for determining how to influence decision-makers entails five basic steps:

- Determine who has the power to make the decision—in this case, the school board. However, make inquiries to determine which individuals actually matter most. Ask what the process for adopting school policy is and whether a committee or the full board oversees issues like pest management.
- Determine the best board target(s). Assay the politics of the board to determine who will likely support reform, oppose reform, or be undecided. Who are the most powerful board members? PTA representatives are often good sources of this information.
- Establish which individuals or institutions are likely to influence your targets. Individual board members are influenced by a variety of forces. As elected officials, they must respond to their constituents and supporters in order to retain office. Thus, other board members, school staff, the PTA and other teacher and parent organizations, unions, media, the member's family, environmental and public health organizations, community leaders, students, and many others are possible sources of influence.
- Determine whom among those who influence the targeted board member you have influence over or access to. Perhaps you have excellent access to the PTA and environmental groups, but limited access to the board member's family. However, maybe a close personal friend known through church is a board member and that relationship can be brought to bear on the target.
- Calculate which influences are required to move your target. You will be unable to use all potential influences over your target, but will not necessarily need to. You must determine which are most appropriate and accessible.

Step Six: Develop and Implement a Strategic Plan of Action

You know your goals and whom you need to influence. Now it is crucial to develop a strategic plan. Strategic thinking involves thinking through what steps may and may not work. Properly done, it will make campaign efforts most effective and efficient, maximizing use of energy, time, and resources. Your strategic plan should focus on how to influence the school board.

Recruitment

Recruitment is a critical component of any successful campaign. Your success may in part depend on recruiting a broad spectrum of audiences, including school staff, board members, the PTA, the PTO, and teachers. Recruitment serves to educate the public, enlist volunteers, demonstrate broad support, and many other purposes. Recruiting tactics abound:

- Designing and distributing a short

educational fact sheet is one of the best ways to get out your message. Sheets are easy to prepare and highly effective. The fact sheet must describe the problem, your solution, and what people can do to get involved; indicate upcoming meetings, important hearings, or school board members that need to be contacted; and provide a contact person and phone number for more information.

- Collecting petition signatures educates the public about your campaign, demonstrates support for your platform, and recruits volunteers. Petitioning while parents drop off or pick up their children is effective in many communities. Often students will circulate a "student" petition as well as one for adults. Provide space on the petition for people to indicate their interest in volunteering. Keep a copy of all signed petitions for future use and in order to collect names, addresses, and telephone numbers.
- Handing out informational flyers to recruit support and members is often combined with petitioning as parents leave and retrieve their school children. Farm Without Harm, a community group in Monterey, California, used this tactic in their campaign to reduce pesticide use in the Pajaro Unified School District.
- Making educational presentations to groups such as the PTA, PTO, other local school organizations, and local environmental and community groups activates potential supporters. The New Jersey Environmental Federation has given nearly 100 such presentations over recent years, bringing many school districts to adopt IPM resolutions. Presentations are easily done and fun. Contact organizations you want to present to and ask to be placed on an upcoming meeting agenda. Ascertain how much time you will have to present. Prepare appropriately, being sure to consider whom you are presenting to and what reasons would most compel them to support least-toxic IPM. Interactive presentations are particularly interesting and informative for your audience and you.
- Placing informational tables in high traffic locations, such as school events, farmers' markets, heavy shopping areas, and public transportation centers, provides easy distribution of campaign materials.
- Phone banking a list you have compiled of interested individuals allows you to update them on activities, invite them to meetings, and ask them to participate in campaign activities.
- Holding regular, well-planned meetings that run at most 90 minutes to two hours with your group keeps supporters involved with minimal intrusion on their busy schedules.

Media

Garner media exposure to effectively educate the broader public about your issue and influence school board members. Several tactics can help get your message out.

Press conferences are the leading means to release new information, a report, or updates on breaking issues to media. An excellent hook to attract media attention is to issue a report on the problem. This should be relatively easy if you have already learned what pesticides are being used and what alternatives exist. In 1996, Pesticide Watch Education Fund compiled a report that documented San Francisco Recreation and Park Department pesticide use and held a press conference to release results. This report proved to be a very effective weapon, resulting in passage of one of the nation's toughest pesticide ordinances. If you want to compile a report, we can assist.

Radio talk shows are increasingly persons' source for news, and many allow for public

discussion of important community events. Call your local station and sell them on your campaign.

Editorials in newspapers cover a wide range of topics, including local issues that impact schools. To set up a meeting with an editorial board to discuss your concerns, send a letter of request. Include information about the issue you want to discuss and whom you would like to bring to the meeting. Follow the letter with a phone call. At some newspapers, it is fairly easy to get a meeting, at others all but impossible.

Opinion editorials sent from the public regularly appear in newspapers. Opinion pieces are an ideal medium to communicate with the public because you control the content. When a reporter or editor presents your issue, they are free to put their own slant on your message through what they exclude and include, the tone they use, and the context in which they place it. Consult your local paper to determine opinion piece guidelines. If the piece is co-authored by an influential community member considered an authority on the subject, such as the PTA chair, the paper is more likely to print it.

Letters to the editor are usual in most newspapers. Consult the paper for special requirements, such as the number of words permitted, if you choose this tactic.

Feature stories are composed by reporters on issues they believe are or should be of interest to their audience. Community activist Theresa Tye worked with a local reporter to cover her campaign to rid her son's school of pesticides. She told local reporters her story, several of whom followed through with articles over the next several years.

Grassroots Pressure
Grassroots tactics are essential.

Send letters or postcards to targeted school board members. As part of your public education effort, distribute a sample letter people can work from.

Direct action helped Watsonville, California, parents and teachers in their effort to eliminate pesticide use in the Pajaro Unified School District. They demonstrated outside of the Freedom Elementary School to publicize their campaign and educate the community, carrying signs in Spanish and English stating "Children Exposed to Toxic Pesticides at this School." They also circulated leaflets and petitions among parents and teachers. As a result, several local newspapers covered the campaign and parents and teachers were newly informed.

Lobbying
Meet with key school board members to lobby for their support. Bring other community members to the meeting—if possible, some who personally know members. Provide appropriate materials, including fact sheets, petitions, a list of coalition members and other supporters, and a copy of the actions you want supported. Ask sympathetic board members to commit to support and for names of other members to approach.

Coalition Building
Coalition building effectively demonstrates broad-based support for your campaign. Many constituencies are likely to endorse your efforts and should be approached, including environmental and public health organizations, the PTA, unions within the school, and local community groups. Other essential targets are important community figures—local elected officials, former school board members, prominent business persons, and more.

Pesticide Watch Education Fund and concerned parents and teachers used this strategy to bring many organizations into the San Francisco Safe Schools Coalition. They compiled a list of coalition targets and mailed them campaign information with a form to return endorsing the platform and a list of additional ways to get involved. Coalition members made follow-up phone calls to prospective members and answered their questions.

Choosing Strategies
Analyze what resources you have before deciding which among the strategies and tactics listed above will constitute your strategic plan. Determine how many volunteers you can count on for campaign work; what funds are available to print fact sheets and produce other materials to educate school board members, the media, and the public; and how much campaign time you can commit.

Step Seven: Submit Your Proposal to the School Board for Formal Adoption

Least-toxic IPM must become official school district policy so that it becomes institutionalized. Otherwise, the program will be subject to change each time board membership or the person(s) in charge of pest management change(s). Present your proposal to the school board for official adoption. In the likely event that a public hearing on the proposal is held, be prepared.

Hone your message. Everyone who presents to the board should send a uniform message agreed upon by coalition members.

Line up your votes. Before the hearing, know where each board member stands on the issue. Know which represent undecided, "swing" votes and craft your presentation to sway them, as they are most motivated to attend to your message. Should you discover insufficient board support to win passage of a policy, delay your request for passage—a policy is more difficult to pass after already rejected. Still, at every opportunity use hearings' open public comment period to educate the board.

Pack the hearing. The greater the number of supporters at the hearing, the better. School board members concerned about re-election find it difficult to vote against a popular proposal.

Stage your presentation. Consider the most effective way to present your policy. Your (it is hoped) numerous supporters could, for example, sport visuals such as signs and symbols on their clothes indicating support.

Prepare for the opposition. Identify your probable opposition, know their main arguments, and be prepared to counter with your own information.

Step Eight: Publicize Results

Let people know about your efforts through the media. If you win passage of your proposal, media coverage gives your organization and elected officials a positive public image. If passage fails, coverage allows you to demonstrate outrage at the board's vote against protecting child and public health. In either event, you will reach a wide electorate who will determine the next school board.

Step Nine: Form an IPM Committee

Implementing the Gold Standard IPM entails forming an IPM committee to work with an IPM coordinator. The most successful IPM programs enlist many constituents in executing the program—parents, teachers, students, maintenance workers, environmental and

public health organizations, and school staff. They also require oversight to insure that those involved continue to implement policy so as to protect public health and the environment.

The committee must address three vital issues immediately: training, education, and troubleshooting. Program success depends on training school staff responsible for pest management in least-toxic IPM methods. A tremendous resource is the Bio-Integral Resources Center's manual on school IPM (see the Resources section). Other school community members will also need policy education. According to many school staff who have implemented IPM, the most essential step to eliminate pest problems is to improve sanitation. Students, teachers, and custodians must grasp the importance of keeping cafeterias and classrooms clean. Finally, the committee must troubleshoot specific problems that may impede transition. For example, it will need to insure that funds for equipment and training suffice, and that any contracted-out pest control services are awarded to providers with superior least-toxic IPM training.

Usually the IPM committee must meet frequently in the initial stages of implementation and less so once the program is established.

Step Ten: Watchdog Implementation

Managing pests safely requires constant vigilance to avoid reverting to old habits of pesticide dependence. Several award-winning model pesticide programs in California, including in Los Angeles, San Jose, and Fremont, are using numerous hazardous pesticide products, including possible and probable carcinogens, reproductive toxins, acute nerve toxins, and hormone-mimicking pesticides.

Eugene, Oregon, school district staff proposed increasing herbicide use on school grounds despite their nationally recognized IPM program. An intense public education campaign led by the Northwest Coalition for Alternatives to Pesticides (NCAP) and concerned teachers and parents prevented the increase. However, the confrontation demonstrates that even highly accomplished programs require diligent oversight to ensure long-term success.

Agency for Toxic Substances and Disease Registry (ATSDR) and the U.S. Environmental Protection Agency (USEPA) (1998) *Public Health Implications of Exposure to Polychlorinated Biphenyls (PCBs)*, US Department of Health and Human Services, Public Health Service, Atlanta, GA, December.

Agency for Toxic Substances and Disease Registry (ATSDR) (1997) *Polychlorinated Biphenyls (Update)*, US Department of Health and Human Services, Public Health Service, Atlanta, GA.

Agron, J. (2000) *29th Annual Maintenance and Operations Cost Study: School Administrators Getting Little Respect*, American School & University 29th Annual Maintenance and Operations Cost Study, available on the web at www.asumag.com/research/Maint-School2000.html.

American Cancer Society (ACS) (1999) Childhood Cancer - General Statement, ACS. Available on the web at www.cancer.org, December.

American Lung Association (ALA) (1998) Trends in Asthma Morbidity and Mortality, ALA Epidemiology & Statistics Unit. Available on the web at www.cdc.gov:80/nchswww/fastats/pdf/10199+57.pdf, November.

Bearer, C.F. (1995) "How are children different from adults?" *Environmental Health Perspectives* 103 (Supplement 6): 7-12, September.

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (2000) *Health Effects of 48 Commonly Used Pesticides in Schools*, BP/NCAMP Factsheet, Washington, DC, August.

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (BP/NCAMP) (2000a) Local School Pesticide Policies. Available on the web at www.beyondpesticides.org

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (1999) *Beyond Pesticides/NCAMP Facts and Figures: Children, Pesticides and Schools*, Washington, DC.

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (1999a) Addendum to *Voices for Pesticides Reform: The Case for Safe Practices and Sound Policy*. A 1996 report by Beyond Pesticides/National Coalition Against the Misuse of Pesticides and the Northwest Coalition for Alternatives for Pesticides, Washington D.C.

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (1999b) Alternatives to using Pesticides in Schools: A Beyond Pesticides/NCAMP Factsheet, *Pesticides and You* 19 (3): 13.

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (1996) *Voices for Pesticides Reform: The Case for Safe Practices and Sound Policy*. Beyond Pesticides/National Coalition Against the Misuse of Pesticides and the Northwest Coalition for Alternatives for Pesticides, Washington D.C.

California Department of Toxic Substances and Control (CDTSC) (2000) *Fact Sheet: New Environmental Requirements for Proposed Schoolsites (Assembly Bill 387 and Senate Bill 162)*, California EPA DTSC School Property Evaluation and Cleanup Division, June.

California Department of Toxic Substances and Control (CDTSC) (1999) *Schools White Paper* - Prepared by the California Department of Toxic Substances and Control (DTSC), October.

California Environmental Protection Agency (CEPA) and the California Department of Toxic Substances and Control (CDTSC) (1994) *Preliminary Endangerment Assessment Guidance Manual*, CEPA and CDTSC, Berkeley, CA, January.

California Health and Human Services Agency (CHHS) (1999) Changes in the Population of Persons with Autism and Pervasive Developmental Disorders in California's Developmental Services System: 1987 through 1998 , A Report to the Legislature, CHHSA, Department of Developmental Services, Sacramento, CA, March.

California Public Interest Research Group (CAPIRG) Charitable Trust (2000) *"P" is for Poison: Update on Pesticide Use in California Schools*, CAPIRG Charitable Trust, Californians for Pesticide Reform, San Francisco, CA.

Coalition for Adequate School Housing (CASH) (2000) "History of toxics issue: Why schools can't self-certify," CASH Register Toxics Special Edition, April.

Feldman, J. (2000) "The lowdown on Dursban; MOE'd down by EPA," Beyond Pesticides/ National Coalition Against the Misuse of Pesticides, *Pesticides and You* 20 (1): 14-18, Spring.

Fenske., R., Black, K.G., Elkner, K.P., Lee, C-L., Methner, M. and Soto, R. (1990) "Potential exposure and health risks of infants following indoor residential pesticide applications," *American Journal of Public Health* 80 (6): 689-693.

Goldman, L., Genel, M., Bezman, R.J., and Slanetz, P.J. (1998) "Diagnosis and treatment of attention deficit disorder in children and adolescents," *Journal of the American Medical Association* 279 (14): 1100-1107.

Goldman, L. R. (1998a) "Chemicals and children's environment: What we don't know about risks," *Environmental Health Perspectives* 106 (Supplement 3): 875-880, June.

Government Services Administration (GSA) (1989) *Public Building Service*, Specification No. BM-5-1, January.

Greater Boston Physicians for Social Responsibility (GBPSR) (2000) *In Harms Way: Toxic Threats to Child Development*, Greater Boston Physicians for Social Responsibility, Cambridge, MA, May.

Guillette, EA., Meza, MM., Aquilar, MG., Soto, AD., Gracia, IA (1998) "An anthropological approach to the evaluation of preschool children exposed to pesticides in Mexico." *Environmental Health Perspectives* 106 (6): 347-353.

Gurunathan, S., Robson, M., Freeman, N., Buckley, B., Roy, A., Meyer, R., Bukowski, J., and Lioy, PJ. (1998) "Accumulation of Chlorpyrifos on Residential Surfaces and Toys Accessible to Children," *Environmental Health Perspectives* 106 (1): 9-16, January.

Healthy Schools Network (HSN) (1999) *Why Worry When You Send Your Child To School,* A Healthy Schools Network Report to Parents, Educators, and Public Officials, Albany, NY, March.

Healthy Schools Network (HSN) (1999a) *Children, Learning, and Poisons Don't Mix: Kick the Pesticide Habit,* Healthy Schools Network, Albany, NY.

Kamrin, M.A. (1997) *Pesticide Profiles, Toxicity, Environmental Impact and Fate,* Boca Raton FL: Lewis Publishers.

Landrigan, P.J., Claudio, L., Markowitz, S.B., Berkowitz, G.S., Brenner, B.L., Romero, H., Wetmur, J.G., Matte, T.D., Gore, A.C., Godbold, J.H., and Wolff, M.S. (1999) "Pesticides and inner-city children: Exposures, risks, and prevention," *Environmental Health Perspectives* 107 (Supplement 3): 431-437, June.

Landrigan, P.J., Carlson, J.E., Bearer, C.F., Cranmer, J.S., Bullard, R.D., Etzel, R.A., Groopman, J., McLachlan, J.A., Perera, F.P., Reigart, J.R., Lobison, L., Schell, L., and Suk, W.A. (1998) "Children's health and the environment: A new agenda for preventive research." *Environmental Health Perspectives* 106 (Supplement 3): 787-794, June.

Leidy, R.B., Wright, C.G., and Dupree, H.E.J. (1982) "Concentrations and movement of diazinon in the air," *Journal of Environmental Science and Health* B17: 311-19.

Longnecker, M.P., Rogan, W.J. and Lucier, G. (1997) "The human health effects of DDT (dichlorodiphenyltrichloroethane) and PCBs (polychlorinated biphenyls) and an overview of organochlorines in public health," *Annual Review of Public Health 18: 211-244.*

National Cancer Institute (NCI) (1998) Surveillance, Epidemiology, and End Results (SEER) Cancer Statistics Review, 1973-1995, Reis, L.A.G., Kosary , C.L. Hankey, B.F., Miller, B.A., and Edwards, B.K. (Eds)., NCI, Cancer Control Research Program, Division of Cancer Prevention and Control, Bethesda, MD.

National Research Council (NRC) (1993) *Pesticides in the Diets of Infants and Children, Committee on Pesticides in the Diets of Infants and Children,* Board of Agriculture and Board of Environmental Studies and Toxicology, NRC, National Academy Press, Washington, DC.

Needleman, H.L. and Landrigan, P.J. (1994) *Raising Children Toxic Free,* New York, NY: Farrar, Straus, and Giroux.

New York State Department of Environmental Conservation (NYSDCEC) (1994) Technical and Administrative Guidance Memorandum (TAGM) on the Determination of Soil Cleanup Objectives and Cleanup Levels (revised), NYSDEC, Division of Hazardous Waste Remediation, January 24.

Nishioka, M.G., Burkholder, H.M., Brinkman., M.C., Gordon, S.M., and Lewis, R.G. (1996) "Measuring transport of lawn applied herbicide acids from turf to home: correlation of dislodgeable 2,4-D turf residues with carpet dust and carpet surface residues," *Environmental Science & Technology* 30 (11): 1313-1320.

Northwest Coalition for Alternatives to Pesticides (NCAP) (2000) *Unthinkable Risk: How Children Are Exposed and Harmed When Pesticides Are Used At School*, NCAP, Eugene, OR, April.

Northwest Coalition for Alternatives to Pesticides (NCAP) (1998) *Worst Kept Secrets: Toxic Inerts in Pesticides, NCAP*, Eugene, OR, January.

Northwest Coalition for Alternatives to Pesticides (NCAP) (1997) "Hidden toxic' inerts': A tragicomedy of errors," NCAP *Journal of Pesticide Reform* 27 (2):10-11, Summer.

Northwest Coalition for Alternatives to Pesticides (NCAP) (1994) *Getting Pesticides Out of Our Schools*, NCAP, Eugene, OR, August.

Owens, K. and Feldman, J. (2000) "The schooling of state pesticide laws - 2000," Beyond Pesticides/National Coalition Against the Misuse of Pesticides, *Pesticides and You* 20 (2): 16-23, Summer.

Pesticide Watch Education Fund (PWED) (2000) *Reducing Pesticide Use in Schools: An Organizing Manual, PWED*, San Francisco, CA.

Regents Advisory Committee on Environmental Quality in Schools (RACEQS) (1994) *Report to the New York State Board of Regents on the Environmental Quality of Schools*, The University of the State of New York, The State Education Department, Albany, NY.

Tilson, H.A. (1998) "Developmental and neurotoxicology of endocrine disruptors and pesticides: Identification of information gaps and research needs," *Environmental Health Perspectives* 106 (Supplement 3): 807-811, June.

U.S. Department of Education (USDE) (2000) *The Condition of Education 2000*, USDE, National Center for Education Statistics, Report # NCES 2000-062, Washington, D.C.

U.S. Department of Education (USDE) (2000a) *The Administration's School Construction Package: $1.3 Billion Loan and Grant Proposal for renovations and Repairs and $24.8 Billion for New Construction and Major Renovations*, USDE, Washington, D.C. Available on the web at www.ed.gov/inits/construction/package.html.

U.S. Department of Education (USDE) (2000b) *The Urgent National Need for School Construction and Modernization, USDE*, Fact Sheet, Washington D.C. Available on the web at www.ed.gov/inits/construction/urgentneed.html.

U.S. Environmental Protection Agency (USEPA) (1999) *Recognition and Management of Pesticide Poisonings 5th edition*, USEPA Office of Prevention, Pesticides, and Toxic Substances, EPA 735-R-98-003, Washington, DC, March.

U.S. Environmental Protection Agency (USEPA) (1999a) Pesticide Registration and Classification Procedures, Code of Federal Regulations Title 40 Volume 16, Part 152.25 Subpart B – Exemptions , Revised, July. Available on the web at www.epa.gov/pesticdes/cfr.htm.

U.S. Environmental Protection Agency (USEPA) (1998) *Endocrine Disruptor Screening and Testing Advisory Committee, Final Report*, USEPA Office of Prevention, Pesticides, and Toxic Substances, Washington, DC.

U.S. Environmental Protection Agency (USEPA) (1998a) *Chemical Hazard Availability Study*, USEPA Office of Prevention, Pesticides, and Toxic Substances , Washington, DC. Available on the web at www.epa.gov/opptintr/chemtest/hazchem.htm.

U.S. Environmental Protection Agency (USEPA) (1995) *The Brownfields Economic Redevelopment Initiative Application Guidelines for Demonstration Projects*, USEPA Office of Solid Waste and Emergency Response, EPA/540/R-94/066 PB990 9230.0-30, Washington, DC, September.

U.S. Environmental Protection Agency (USEPA) (1995a) *Common Chemicals Found at Superfund Sites*, USEPA Office of Solid Waste and Emergency Response, Fact Sheet, Washington, D.C. Available on the web at www.epa.gov/superfund/resources/chemicals.htm.

U.S. Environmental Protection Agency (USEPA) (1993) *Pest Control in the School Environment: Adopting Integrated Pest Management*, USEPA Office of Pesticide Programs (H7506C), EPA-735-F-93-012, Washington, D.C., August.

U.S. Environmental Protection Agency (USEPA) (1990) *Nonoccupational Pesticide Exposure Study (NOPES)*, USEPA Atmospheric Research and Exposure Assessment Laboratory, EPA/600/3-90/003, Research Triangle Park, NC, January.

U.S. Environmental Protection Agency (USEPA) (1987) *Inert Ingredients in Pesticide Products: Policy Statement*, USEPA Office of Pesticide Programs, Washington, D.C., April. Available on the web at www.epa.gov/opprd001/inerts/fr52.html.

U.S. Government Accounting Office (USGAO) (1999) *Pesticides: Use, Effects and Alternatives to Pesticides in Schools*, GAO Report # GAO/RCED-00-17, Washington, D.C., November.

U. S. Government Accounting Office (USGAO) (1995) *School Facilities: Conditions of America's Schools*, GAO Report # HEHS-95-61, Washington, D.C., February.

Weiss, B. (1997) "Endocrine disruptors and sexually dimorphic behaviors: a question of heads and tails," Neurotoxicology 18 (2): 581-586.

Wirth, T.E. (2000) "Environment & Health: A connection to the Current Debate on Education in America," Presented at the Roundtable on Environmental Health Science, Research & Medicine, The National Academy of Sciences, Washington, D.C., June 20.

Wright, C.G., Leidy, R.B., and Dupree, H.E. (1981) "Insecticides in the ambient air of rooms following their application for control of pests," *Bulletin of Environmental Contamination & Toxicology* 26: 548-553.

American Federation of Teachers, a union that represents K–12 teachers, other school employees, health care professionals, and public employees, considers itself an advocacy organization for children and the public. It provides technical assistance to members on indoor air pollution and other environmental problems in schools.
555 New Jersey Ave. NW, Washington, DC 20001–2079 • Phone: (202) 879-4400
www.aft.org

Beyond Pesticides/National Coalition Against the Misuse of Pesticides (NCAMP) is a national network of membership organizations committed to pesticide safety and adoption of integrated pest management strategies that reduce or eliminate toxic chemical use.
701 E St. SE, Ste. 200, Washington, DC 20003–2841 • Phone: (202) 543-5450
Fax: (202) 543-4791 • info@beyondpesticides.org • www.beyondpesticides.org

Bio-Integral Resource Center (BIRC) publishes two journals—*The IPM Practitioner* and *Common Sense Pesticide Control Quarterly*—and the *Annual Directory of Least-Toxic Pest Control Products* and *IPM in Schools: A How-to Manual*. BIRC provides IPM consultation and training.
P.O. Box 7414, Berkeley, CA 94707 • Phone: (510) 524-2567 • Fax: (510) 524-1758
birc@igc.org • www.birc.org

California Environmental Protection Agency, Department of Toxic Substances and Control has created a new school division within its department to provide staff assistance specifically to California school districts for approval of school site acquisition applications. Approval assures that all California state legislation (AB 387 and SB162) environmental site assessment requirements for school siting are met. Write DTSC to receive a copy of the Preliminary Endangerment Assessment Guidance Manual. Its website offers information about CA state legislation, case studies, and implementation guidelines.
School Property Evaluation and Cleanup, 1011 N. Grandview Ave., Glendale, CA 91201
www.dtsc.ca.gov/site_mit/spec/

California Public Interest Research Group (CALPIRG) Charitable Trust is the 501(c)(3) sister organization of CALPIRG, a non-profit, nonpartisan research and advocacy organization working on behalf of consumers and the environment. With over 70,000 members and 14 offices statewide, CALPIRG is the largest consumer group in California. CALPIRG is heading up a Healthy Schools Campaign to pass and implement integrated pest management policies in school districts across the state.
California Public Interest Research Group, 3486 Mission Street, San Francisco, CA 94110
Phone 415-206-9338 • Fax 415-206-1859 • calpirg@calpirg.org

Californians for Pesticide Reform (CPR) is a coalition of over 140 public interest organizations committee to protecting public health and the environment from pesticide proliferation. CPR's mission is to educate Californians about environmental and health risks posed by pesticides; eliminate the use of the most dangerous pesticides in California and reduce overall pesticide use; promote sustainable pest control solutions for our farms, communities, forest, homes and yards; and hold government agencies accountable for protecting public health and Californians' right to know about pesticide use and exposure. CPR's Healthy Schools Campaign works to pass and implement integrated pest management policies in school districts across the state.
Californians for Pesticide Reform, 49 Powell Street, Suite 530, San Francisco, CA 94102
Phone 415-981-3939 or in California 888-CPR-4880 Fax 415-981-2727
pests@igc.org/cpr • www.igc.org/cpr

California's Coalition for Adequate School Housing (CASH) since 1978 has promoted, developed, and supported enactment of new state and local funding alternatives for public K–12 school construction, maintenance, and modernization. Its membership comprises over 500 CA school districts. Over 500 associate members include facility consultants, planners, developers, and real estate consultants.
C/O Murdoch, Waalrath and Holmes, 1130 K St., Ste. 210, Sacramento; CA 95814
www.cashnet.org

Center for Health, Environment and Justice (CHEJ) is a nationwide organization whose mission is to empower grassroots groups community people to organize into collective active, ongoing democratic forces to ensure that our communities are free from environmental threats to human health, and to curtail the power of polluters. CHEJ educates the public about environmental toxins and their influence on children's health and helps concerned parents in contaminated communities identify and understand environmental threats to their children. CHEJ helps communities take steps to eliminate specific chemical exposures by providing customized community organizing, review of technical documents and reports, and by referring them to skilled leaders in other communities who have won similar fights. CHEJ also organizes and participates in national campaign efforts such as *the Child Proofing Our Communities: Poisoned School Campaign*, the Stop Dioxin Exposure Campaign, and Health Care Without Harm.
PO Box 6806, Falls Church, VA 22040 • Phone: (703) 237-2249 • Fax: (703) 237-8389
chej@chej.org • www.chej.org

Children's Environmental Health Network is a national multi-disciplinary effort that focuses on education, research, and policy to promote a healthy environment and to protect fetus and child from environmental hazards.
110 Maryland Ave. NE, Ste. 511, Washington, DC 20002 • Phone: (202) 543-4033
Fax: (202) 543-8797 • cehn@cehn.org • www.cehn.org

Children's Health Environmental Coalition researches the causes of childhood cancers and their relation to environmental hazards. Its advisory board includes founders Nancy and Jim Chuda and environmental health experts and advocates from around the nation, including spokesperson Olivia Newton-John.
P.O. Box 1540, Princeton, NJ 08542 • Phone: (609) 252-1915 • Fax: (609) 252-1536
chec@checnet.org • www.checnet.org

Healthy Schools Network, Inc. is a not for profit advocate for the protection of children's environmental health in school; HSN seeks systemic reforms working in coalition with local, state, and national parent, public health, environment, and education groups. Founded in 1994, HSN's child-centered research and information and referral services work to ensure every child and school employee an environmentally safe and healthy school which is clean and in good repair. HSN's guides, reports and technical assistance are designed to help parents and others in the education community promote environmentally responsible schools and secure protections for children.
773 Madison Avenue, Albany, NY 12208 • Phone: (518) 462-0632 • Fax: (518) 462-0433
www.healthyschools.org

Institute For Children's Environmental Health, a non-profit educational organization, works to foster collaborative initiatives to mitigate environmental exposures that can undermine the health of current and future generations. ICEH is coordinating the national Partnership for Children's Health and the Environment—a loosely-knit group of government, academic, and grassroots organizations working on children's environmental health issues—and the Healthy Futures Project—a project-based environmental health training program for teens in the Pacific Northwest that fosters both scientific thinking and creative expression to inspire youth to serve as change agents for a healthy future.
P.O. Box 757, Langley, WA 98260 • Phone: (360) 221-7995 • Fax: (360) 321-7993
elise@whidbey.com • www.iceh.org

IPM Institute of North America, Inc. is a non-profit formed in 1998 to create recognition and rewards for goods and service providers who practice IPM. Consumer IPM support is a powerful incentive for increasing IPM adoption in agriculture, grounds maintenance, and public and private facilities such as schools. Organizations, professionals, products, and services meeting IPM Institute Standards earn the right to display the IPM Institute Certified Seal. The institute assists with developing and maintaining IPM requirements; training and certifying compliance verifiers; and heightening consumer awareness of and support for IPM-identified products and services. Its manual, *IPM Standards for Schools: A Program for Reducing Pest and Pesticide Risks in Schools* (now available on-line), provides a new tool to help answer questions about whether school pest management practices are least-toxic and effective.
1914 Rowley Ave., Madison WI 53705 • Phone: (608) 232-1528 • Fax: (608) 232-1530
ipminstitute@cs.com • www.ipminstitute.org

Learning Disabilities Association, a volunteer organization comprising persons with learning disabilities, their families, and professionals, seeks to enhance the quality of life for all with learning disabilities and their families; alleviate learning disability effects; and support efforts to determine the cause of learning disabilities. One project focuses on developmental effects on children of exposure to environmental chemicals.
4156 Liberty Road, Pittsburgh, PA 15234 • Phone: (412) 341-1515 • Fax: (412) 344-0224
www.ldanatl.org

Mothers and Others for a Livable Planet advocates translating environmental concerns to everyday life by providing practical, solutions-oriented information on safe foods and products. It publishes a monthly newsletter, *Green Guide*, among other publications.
40 West 20th St., New York, NY 10011 • Phone: (212) 242-0010 • Fax: (212) 242-0545
greenguide@mothers.org • www.mothers.org

National Clearinghouse for Educational Facilities (NCEF) provides extensive information resources for people who plan, design, build, and maintain K–12 schools. NCEF is part of the US Department of Education's Educational Resources Information Center (ERIC). Resources address school siting, design, construction, renovation, maintenance and operation, financing, and planning; focus includes environmental health issues such as indoor air quality, pest management, and sanitation.
National Institute of Building Sciences, 1090 Vermont Ave. NW, Ste. 700, Washington, DC 20005 • Phone: (202) 289-7800 and (888) 502-0624 • Fax: (202) 289-1092
www.edfacilities.org

National Education Association (NEA)/ Health Information Network (HIN) disseminates information on indoor air quality (IAQ) as well as other health issues. HIN packet, *IAQ and You*, has information on various indoor air contaminant and pollutants, including pesticides. NEA report, *Modernizing Our Schools: What Will It Cost?*, details the current condition of schools and need for construction, renovation, and repair.
1201 16th St. NW, Ste. 521, Washington, DC 20036 • Phone: (800) 718-8387
Fax: (202) 822-7775 • info@neahin.org • www.nea.org and www.neahin.org

National Parent Teacher Association supports and speaks on behalf of children and youth in the school, in the community, and before government bodies and other organizations. It has adopted a number of position statements and resolutions that reflect PTA members' concerns about environmental issues that impact children's health and welfare. In 1992, National PTA announced support for IPM to lower children's exposure to pesticides in schools. In October 1999, it reaffirmed support for reducing school pesticide use by endorsing the School Environmental Protection Act of 1999.
330 N. Wabash Ave., Ste. 2100, Chicago, IL 60611-3690 • Phone: (312) 670-6782
Fax: (312) 670-6783 • info@pta.org • www.pta.org

National Pediculosis Association seeks to protect children from misuse and abuse of potentially harmful lice and scabies treatments. It produces various publications as well as the LiceMeister website.
P.O. Box 610189, Newton, MA 02461 • Phone: (781) 449-NITS (6487)
Fax: (781) 449-8129 • npa@headlice.org • www.headlice.org

New York Coalition for Alternatives to Pesticides (NYCAP) strives to eliminate use of hazardous chemicals by promoting safer alternatives to pesticides, cleaning supplies, and other chemicals. NYCAP outreach efforts include publishing *Solutions* magazine and many other publications.
353 Hamilton St., Albany, NY 12210-1709 • Phone: (518) 426-8246 • Fax: (518) 426-3052
nycap@igc.apc.org • www.crisny.org/not-for-profit/nycap/nycap.htm

Northwest Coalition for Alternatives to Pesticides (NCAP) provides information on pesticides and pest management alternatives, including facts on risks of school pesticide use, and strategies for reducing use. Publications include *Unthinkable Risk: How Children Are Exposed and Harmed When Pesticides Are Used at School*, which profiles nearly 100 pesticide poisoning incidents. NCAP also quarterly publishes *Journal of Pesticide Reform*.
P.O. Box 1393, Eugene, OR 97440 • Phone: (541) 344-5044 • Fax: (541) 344-6923
ncap@igc.apc.org • www.ncap.org

Pesticide Action Network North America (PANNA) publishes *Global Pesticide Campaigner*, a quarterly journal, and *PANUPS*, a weekly online news service highlighting pesticides and sustainable agriculture. Its Website offers over 100 links to other useful sites as well as up-to-date information on PANNA's campaigns and information resources.
49 Powell St., Ste. 500, San Francisco, CA 94102 • Phone: (415) 981-1771
Fax: (415) 391-9159 • panna@panna.org • www.panna.org/panna

Pesticide Watch Education Fund works with individuals and community groups to assist in local efforts to reduce pesticide use and promote safer pest management methods. It provides educational materials, organizing skills training, strategy consultation, technical referrals, and networking opportunities so that groups do not have to "reinvent the wheel." Its several organizing kits include *Parks Are for People Not Poisons, Reducing Pesticide Use in Schools*, and *A Pesticide Drift Kit*.
3486 Mission St., Ste. 500, San Francisco, CA 94110 • Phone: (415) 206-9185
info@pesticidewatch.org • www.pesticidewatch.org

US Environmental Protection Agency
Office of Children's Health Protection
401 M St. SW, Washington, DC 20460 • Phone: (888) 372-8255 • www.epa.gov/children

SAMPLE SCHOOL SITING SURVEY

1. Your Name _____

   Your Title _____

   Name of School District _____

   School District Address _____

   City _____ State _____ Zip Code _____

   Phone _____ Fax _____

   E-mail _____

2. How many schools are in your school district? _____

3. Approximately how many students are enrolled in your school district? _____

4. Are new schools currently under construction or renovation in your school district?
   ❍ Yes ❍ No

5. Are any schools planned for construction or renovation over the next 5 years?
   ❍ Yes ❍ No If YES, how many? _____

6. Do you have a policy of notifying parents and staff of planned....
   A. school construction? ❍ Yes ❍ No
   B. renovation? ❍ Yes ❍ No
   C. site selection for a new school? ❍ Yes ❍ No

   If YES, describe or attach a copy of the policy.

   _____

   _____

7. Do you have a policy to protect students, staff, and the general public during renovation and school construction?
   ❍ Yes ❍ No

   If YES, describe or attach a copy of the policy. _____

   _____

8. Do you have a site selection policy for locating new schools? ❍ Yes ❍ No

   Does this policy include an environmental assessment of the proposed school site?
   ❍ Yes ❍ No

   If YES, does your environmental site assessment include the following?
   A. Site history ❍ Yes ❍ No
   B. Site visit ❍ Yes ❍ No
   C. Interviews ❍ Yes ❍ No
   D. Soil, ground and surface water and/or air sampling ❍ Yes ❍ No
   E. Survey of facilities within 2-mile perimeter of the site, including facilities reporting to the Environmental Protection Agency's Toxic Release Inventory, chemical storage facilities, waste treatment facilities, landfills ❍ Yes ❍ No

9. Does your environmental site assessment take into account the special vulnerabilities of children? ❍ Yes ❍ No

   If YES, please describe how. _____

   _____

10. Do you submit the environmental assessment to
    A. State Department of Education? ❍ Yes ❍ No
    B. State Department of Environmental Protection? ❍ Yes ❍ No
    C. State Department of Health? ❍ Yes ❍ No
    D. The general public for public comment? ❍ Yes ❍ No

    If YES, how is the assessment made available to the public? _____

    _____

11. Are parents, teachers, or community members involved in the site selection process?
    ❍ Yes ❍ No

    If YES, please describe how they are involved. _____

    _____

SAMPLE PEST MANAGEMENT SURVEY

1. Your Name _____

   Your Title _____

   Name of School District _____

   School District Address _____

   City _____ State _____ Zip Code _____

   Phone _____ Fax _____

   E-mail _____

2. How many schools are in your school district? _____

3. Approximately how many students are enrolled in your school district? _____

4. Does your school district have a written policy for
   indoor pest management? ❍ Yes ❍ No
   outdoor pest management? ❍ Yes ❍ No
   outdoor grounds management? ❍ Yes ❍ No

   If YES to any of the above, is the policy adopted by the Board of Education?
   ❍ Yes ❍ No

   If YES to having written policy, do all district schools follow the same policy?
   ❍ Yes ❍ No ❍ Not Sure

   Please include a copy of the policy with your returned survey.

5. What pest problems does your school district face?
   Use an "I" for indoor and/or "O" for outdoor.

___ Cockroaches	___ Spiders	___ Stinging Insects
___ Ants	___ Flies	___ Moths
___ Rodents	___ Mold/Fungus	___ Head Lice
___ Aphids	___ Weeds	___ Moss
___ Plant diseases	___ Birds	___ Wood Destroying Insects

   Other _____

6. Does your school district use pesticides? If YES, go to question 7. If NO, go to 22.
   ❍ Yes ❍ No

7. List the pest control products your school district uses. For each product, check whether it is applied indoors, outdoors to control pests, or outdoors to control weeds. Pesticides include insecticides, herbicides, fungicides, and rodenticides.

Product	Indoor	Outdoor—Pest	Outdoor—Weed

8. If pesticides are used, what kinds of records are kept of applications?
   ❍ Log book ❍ Invoice ❍ Other:_____

9. Where are records kept?
   ❍ School district office ❍ School principal office ❍ Facility manager office
   ❍ School business office ❍ Other:_____

10. How long are records kept (specify number)?
    ____days ____weeks ____years ____other_____

11. Is pest control contracted out to a private firm or managed by a school employee?

	Indoor	Outdoor—Pest	Outdoor—Weed
Staff			
Contractor			
Other			

12. If contracted, who is responsible for monitoring contractor performance after the contract is signed?
❍ Facility manager ❍ School staff ❍ IPM coordinator ❍ Other_____

Please include the contractor service agreement with your returned survey.

13. Does your school district require that those applying pesticides in your school district meet any training or certification or age standards? ❍ Yes ❍ No

If YES, which of these is required?
❍ Over 21 years of age ❍ State certification ❍ State license
❍ Other_____

14. Are pesticides applied on a regular basis (e.g., weekly, monthly) or as needed?
❍ Regular basis (please specify interval: _____) ❍ As needed

15. Does your school district have information on the identity or toxicity of "inert" ingredients in pesticide products used? ❍ Yes ❍ No

16. Does your school district have product labels and Material Safety Data Sheets (MSDS) on file for public inspection for all chemicals used? ❍ Yes ❍ No

17. Does your school district provide any notification of pesticide applications to....?
❍ Parents ❍ Teachers and staff ❍ Students ❍ Community
❍ Other_____

18. Is notification given before or after the pesticide application?
❍ Before ❍ After

If BEFORE, how long before application is notice given (specify number)?
____hours ____days

19. How long after application do postings, notices, or signs remain (specify number)?
____hours ____days ____none

20. How are those listed in question 17 notified?
❍ Bulletin board posting ❍ Letter home to parents ❍ Letter to staff
❍ Students are told ❍ Teachers are told ❍ Signs posted indoors
❍ Signs posted outdoors ❍ Other_____

21. What information is given in notification?
❍ Site(s) of application ❍ Date of application ❍ Time(s) of application
❍ Product(s) applied ❍ Health effect(s) of product(s)
❍ Contact information ❍ Information on how to avoid exposure
❍ Information on how to appeal proposed application
❍ Other: _____

22. Is the school nurse or health unit staff trained to recognize pesticide poisoning?
❍ Yes ❍ No

23. Does the school's emergency management plan address possible pesticide accidents or exposures due to on-site use or use on adjacent properties?
❍ Yes ❍ No

24. Are you aware of staff bringing in their own pest control products?
❍ Yes ❍ No

Is it against state law to do so?
❍ Yes ❍ No ❍ Not sure

25. Does your school district use any non-chemical forms of pest management?
❍ Yes ❍ No

If YES, how long has the school district been using these methods (specify number)?
____Months ____Years

Please describe the non-chemical pest management methods used, including structural, maintenance, and housekeeping practices.

_____

_____

_____

_____

_____

26. What is the approximate annual cost for your school district's pest management activities? $_____

27. Are you familiar with the term "Integrated Pest Management" (IPM)?
❍ Yes ❍ No

If YES, how would you define IPM? _____

_____

28. Would you like to receive information about a model School IPM Policy?
❍ Yes ❍ No

For more information or to order copies of this report contact:

Child Proofing Our Communities Campaign
c/o Center for Health, Environment and Justice
P.O. Box 6806
Falls Church, VA 22040

703-237-2249
childproofing@chej.org